FAMILY DAY HOSTESSES will be on hand tomorrow to provide directions and information. From left are Sherrye Trusty (5444), Edna Otero (1222), Vanessa Haggerty (1751), Becky Dyer (2352), Olivia Salisbury (3727), Marla Kist (1716), Karen Jesperson (5411), Karen Marshall (5732), Lettie Carroll (4312), Kay Montoya (9718), Zonita Crowell (1244), Soila Candelaria (4337), JoAnn Potter (1324), Berweida Learson (1281), Esther Baca (3252), and Bea Kenagy (1141). Now shown are Vanessa Brown (3171) and Roberta Perea (2534). For a complete list of Family Day activities, see Page Four.

LAB NEWS

VOL. 28, NO. 21 OCTOBER 15, 1976

SANDIA LABORATORIES • ALBUQUERQUE NEW MEXICO • LIVERMORE CALIFORNIA • TONOPAH NEVADA

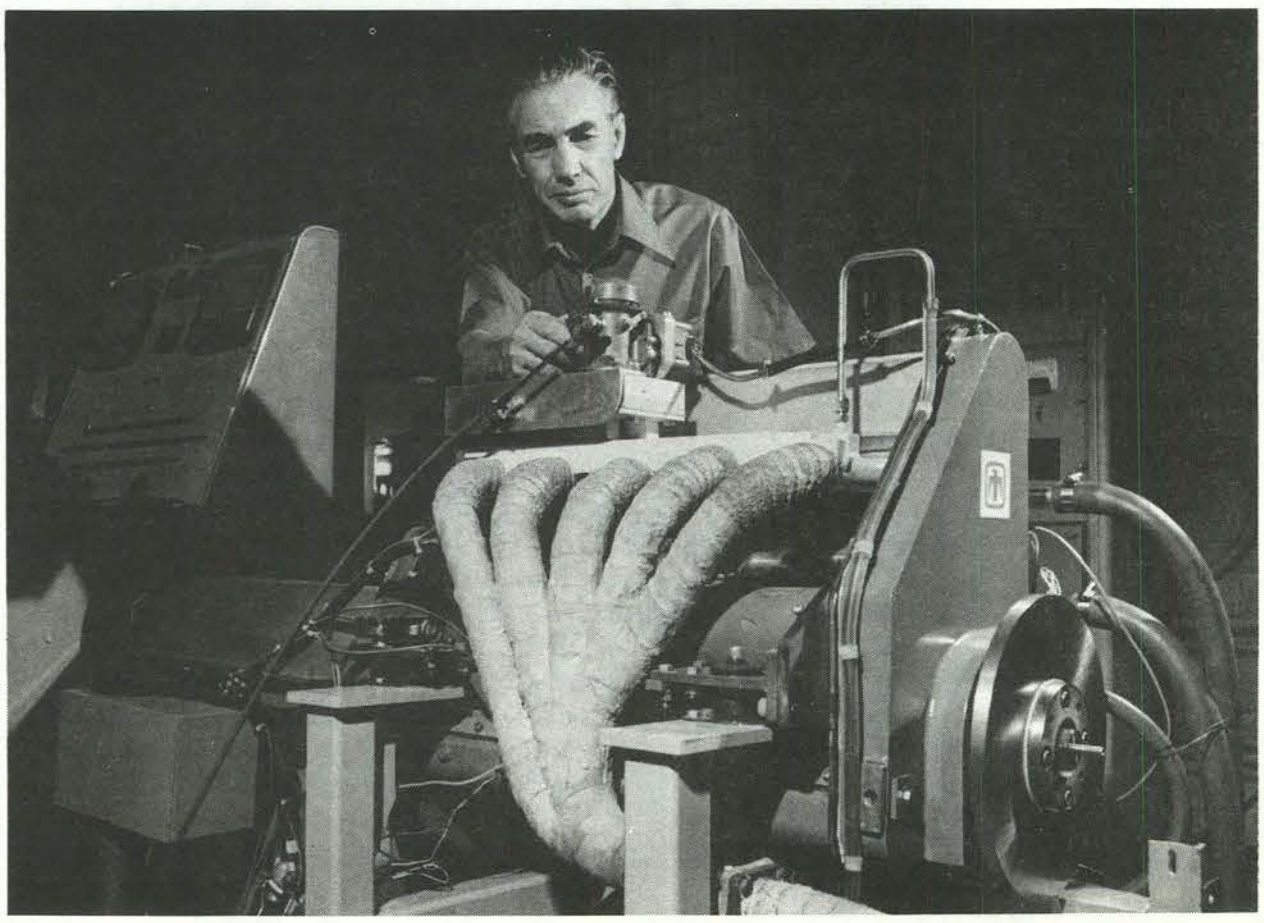
SLL Engine Gives Better Gas Mileage

Sandia Laboratories Livermore has designed, built, and is now testing a variable-displacement automobile engine which, according to computer projections and preliminary testing, may average 40 percent better gas mileage than a conventional engine of equal performance.

Named for its inventor, Harvey Pouliot (8116), the Pouliot engine is similar in most respects to the conventional spark-ignition, four-cycle piston engine. Its unique feature is a mechanical linkage system that enables the driver to change at will the length of the piston stroke, or displacement, and thus adjust the horsepower of his engine to meet the varying demands of the driving situation from moment to moment. Varying the displacement in this way eliminates the need for the throttle, a major cause of inefficiency in today's engines.

According to Harvey, the improvement

[*Continued on Page Three*]



THE MAN AND THE ENGINE — Inventor Harvey Pouliot and variable displacement engine that offers significant fuel economy. Harvey is a member of Sandia Livermore's Combustion Applications Division (8116).

Afterthoughts

Money matters--Last season we thought ski areas were displaying uncommon greed, even for them, when they set lift rates at ten and eleven dollars a day. But we ain't seen nothin' yet. A brochure from Jackson Hole reveals their '76-'77 rate: a cool fifteen bucks a day.

Another interesting number is $12,224,237. In our impecunious state, it would buy a school or two, get water and sewage facilities in places like the South Valley, and maybe have a little left over to keep the New Mexico Symphony solvent. It's the amount, euphorically announced by the State Fair, bet on horses during the racing meet.

* * *

The nuclear debate--"We are left with two alternatives (for energy) --coal and nuclear. Should all our electricity in 2000 be generated by coal, we shall have to mine about 2 billion tons of coal per year --about 3 times what we now mine. This is not impossible, but it is not a very pleasant prospect--what with strip mining, mine disasters, lung disease induced both by mining and by the effluents from the burning coal. The other option is nuclear, about which intense debate rages. I have devoted my whole life to nuclear energy. I concede that nuclear poses problems: radioactive waste disposal, danger of diversion and sabotage, possibility of accident. Nevertheless, considering the alternatives (all of which also pose problems), I believe that the risks are well worth the benefits."--Alvin M. Weinberg, director of the Institute for Energy Analysis, Oak Ridge, Tennessee, writing in the Christian Science Monitor.

"The Federal Power Commission says fumes from coal-fueled power plants without pollution controls will claim 25,000 lives in the next five years. You may think emphysema is strictly a smoker's disease. It isn't. Nonsmokers breathing the polluted air of St. Louis, Mo., have three times as much emphysema as nonsmokers who live in the cleaner air of Winnipeg, Canada." Extract from a brochure of the Natural Resources Defense Council, an environmental group opposed to air and water pollution, aerosol sprays, soil erosion and, yes, nuclear power.

* * *

Actually, it's an improvement--The KHFM announcer this morning was sleepily reading the wire service news about the melancholy Lebanese situation: "In spite of the truce, there were reports of random shouting in several sectors of Beirut." That sure beats being shot at.

* * *

Towards better foot work--"Speak without emphasizing your words. Leave other people to discover what it is that you have said; and as their minds are slow, you can make your escape in time." Schopenhauer

*js

LAB NEWS

Published every other Friday

SANDIA LABORATORIES

An Equal Opportunity Employer

ALBUQUERQUE, NEW MEXICO
LIVERMORE, CALIFORNIA
TONOPAH, NEVADA

Editorial offices in Albuquerque, N.M.
Area 505 264-1053
ZIP 87115

In Livermore Area 415 455-2952

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&
don graham ass't. editor

bruce hawkinson & norma taylor write
bill laskar does picture work
so does russ smith
&
lorena schneider reports on livermore

Events Calendar

Oct. — "Peculiar to Photography" Exhibit, Fine Arts Center, UNM, Tues-Fri, 10-5, Sun 1-5.

Oct. — "The Tender Trap," Barn Dinner Theatre, 281-3338.

Oct. 15-17, 19, 22, 23 — Chaparrals home games, Tingley Coliseum.

Oct. 16 — "The Music Man," KHFM Radio 96.3 FM, 6:40

Oct. 16 — Hike up Embudito Trail, N.M. Mt. Club, 242-5137.

Oct. 22, 23 — Concert by the New Mexico Symphony Orchestra with Edward Villella dancing, Popejoy, 265-3689.

Oct. 23 — Farmers Market, Civic Plaza, noon — 4:30.

Oct. 24 — "Roman de Fauvel," a medieval secular play, by the Ensemble for Early Music, Popejoy, 265-3689.

Oct. 28 — "Shenandoah," Popejoy, 265-3689.

HELEN GAITHER (4252) is handling updating of computerized personnel records. In coming weeks all employees will be asked to review their records.

Personnel Records Update Planned

Accurate company personnel records are important to every employee and to the company. Promotions, transfers — in fact, almost every kind of personnel action is influenced by the information contained in each person's personnel record. For these reasons, all employees will be asked to review and update information contained in their computerized personnel records, according to Bob Edelman, Director of Personnel, 4200.

Name, status and location data plus personnel action records, educational achievements and patents/inventions are the kinds of information to be updated. Other personnel data concerning former employment, honors and memberships are in manual files and will not be reviewed at this time, although plans are underway to review and computerize this data eventually.

Computerization provides rapid access, ability to identify specific skills or unique qualifications and production of automated compilations. To be useful, this information must be accurate. The collective amalgamation of the capabilities of Sandia employees is a primary company resource, says Edelman.

Division 4252 will conduct the records update. The process will proceed numerically through Sandia organizations, starting with Division 1111. Instructions and employee files will be delivered to division supervisors. The complete updating process will take several months. Corrections and new information will be put into the employee's computer personnel record as the update proceeds.

Helen Gaither (4252) is handling the program.

[*Continued from Page One*]

SLL Engine Gives Better Gas Mileage

in gas mileage expected from a variable-displacement engine will be most dramatic at low loads. Therefore, the way the car is driven will have a lot to do with the gas mileage increase. He estimates that a fully-developed version of a variable-displacement engine will average 40 percent better gas mileage in a mid-sized car. After almost 100 hours of testing, the fuel economy is currently about 30 percent better than current engines in both urban and highway driving, although emissions have not yet been controlled.

Harvey says, "We are in the very early exploratory stages of evaluating this engine concept. Additional refinements have been identified which should further improve fuel economy, possibly enough to offset any penalty which might accompany emission controls."

Displacement is controlled by a special, adjustable linkage connecting the pistons to the crankshaft. The control mechanism is operated through the accelerator pedal; thus, the driver adjusts the speed, or power, just as with a conventional engine, and the perceived effect will be about the same. The difference is that with the variable-displacement engine, the pedal adjusts piston stroke, not the throttle in the carburetor, which remains wide open except at idle.

Harvey explains that maximum horsepower is largely determined in current engines by the cylinder volume displaced by the pistons, and the volume displaced never varies. So when less than full power is needed, the carburetor is throttled to reduce the amount of air-fuel mixture reaching the cylinders. The problem is that throttling also interferes markedly with engine efficiency, forcing the pistons to pump air through a narrow opening which restricts the flow.

Thus, today's conventional engines operate at highest efficiency near full power — for example, when passing at high speed or climbing a hill. However, in most driving situations, full power is seldom used. Even a relatively heavy car uses only about eight horsepower for level-road cruising at 30 mph and around 30 horsepower at 60 mph.

Auto industry experts have long recognized that a variable-displacement engine could give vastly improved fuel economy. A number of industry representatives have advised Sandia in the current evaluation of the Pouliot engine concept.

It was only after the Pouliot concept withstood extensive theoretical and computer evaluation by a Sandia team that the decision was made to enter the hardware phase. During studies conducted in mid-1974, the engine geometry and dynamics at every stroke position, loading condition, and engine speed were analyzed on the computer. This evaluation also included computer modeling of the combustion cycle and fuel consumption of this engine in a mid-sized car.

The decision to proceed with hardware was made in March 1975, shortly after the formation of ERDA and, by last November, the first prototype was running. With funding from ERDA's Transportation Energy Conservation Division, Sandia built a full-scale, five-cylinder research prototype of the Pouliot engine with a displacement range of 43 to 190 cubic inches and a maximum horsepower of about 100.

Since last November, the Sandia engineers have been working out problems in this new engine and testing it on a laboratory dynamometer to evaluate fuel economy. Tests disclose emissions and fuel consumed per horsepower while running the engine throughout its displacement range at varying loads. The engine dynamics are well behaved, and fuel economy figures generally confirm computer projections of engine performance. Further, this testing continues to give hope that the Pouliot concept may be, or lead to, a practical design. Emissions have been measured, but have not yet been controlled on this research engine. Exhaust emission levels are similar to those of conventional engines. Like the conventional engine, the variable-displacement engine will require a catalytic converter and other exhaust gas treatment to meet California standards. The next phase of this engine program will emphasize methods of emissions control.

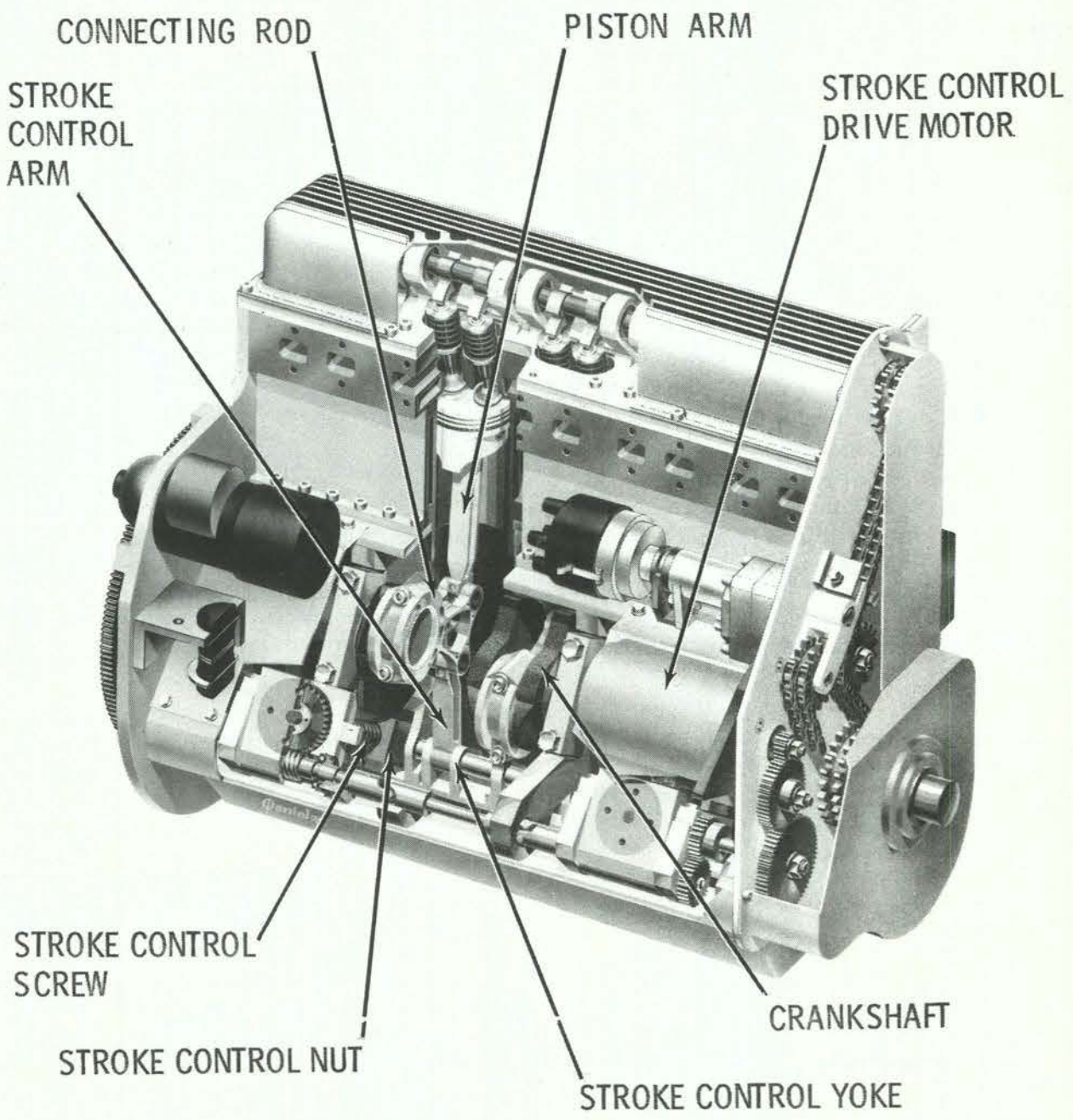
The new engine can be built with the same materials and manufacturing processes now used on building conventional engines, although retooling of the production lines would be required.

Harvey has assigned the patent rights to his invention to the U.S. Government and since ERDA is interested in solving the nation's energy problems but has no intention of going into the auto business, the plan is to involve the auto industry in the development of the engine on a joint-effort basis as early as practicable. Contacts have already been made with major U.S. automakers.

Testing to evaluate performance, fuel economy, and emissions is planned for the coming months with emphasis on bringing emissions within acceptable limits. The results will be used to assess the potential of variable-displacement engines, particularly this concept. If the automobile industry is sufficiently interested, Sandia will assist in exploring it further.

LIVERMORE NEWS

VOL. 28, NO. 21 LIVERMORE LABORATORIES OCTOBER 15, 1976



Variable Displacement Engine

Family Day '76 Is Tomorrow

From spectaculars like a rocket sled test to exhibits and demonstrations of high science, Family Day '76 offers Sandians, their families and friends a brimful package of activities. A complete listing is given below, and you may want to study it so that your tour covers all points of interest to you and your guests.

There are two general tour periods, from 9 to 12 noon and from 1 to 4 pm. No effort will be made to clear the tour area during the noon hour, but no lunch facilities will be provided. Receptionists will greet visitors at all entrances with souvenir folders telling about exhibits. Retirees are also invited and should pick up individual retiree badges in Building 814, Employee Benefits. Complete details and the necessary guest list form are carried in the Sandia Bulletin dated Sept. 16, which was distributed to all employees and mailed to retirees. Family Day '76 promises to be fun — plan to come.

FAMILY DAY EXHIBITS of the Computing 2600 organization are previewed by Natalie Vytlacil (2634) and Ann Yates (2641), two of more than 60 volunteers from the computer group who will be on hand tomorrow to help with special interactive displays.

Family Day Exhibits & Demonstrations

Area I

Satellite Systems: display of satellite components and systems and test facilities. (1240) 880/B47

Full Scale Flight Hardware: full scale flight vehicles including tactical systems, earth penetrator applications and reentry systems. (1300) 835

Wind Tunnel: display of facility and scaled test vehicles. (1300) 865

Parachute Laboratory: display of parachutes, weapons and rocket vehicles. Continuous movie, "Parachute Development at Sandia." (1300) 894/146

Accident Resistant Containers: display of containers and continuous movie showing tests and uses. (1710) MO 42-45

Safe-Secure Trailer: display of special trailer for transporting weapons or nuclear materials. (1710) 890C

Access Control Equipment: demonstration of equipment to detect unauthorized attempts to remove special materials. (1750) 880/C45

Safeguard Surveillance Camera: demonstration of protection system for special nuclear material. (1750) 880/C45

Solid State Development Lab: fabrication of transistors, integrated circuits and solar cells. (2140) 870/Lobby

Hybrid Microcircuits: display of facility for development and fabrication of microcircuits. (2150) 880/D-24

Three Dimensional Television: demonstration of 3-dimensional TV using Sandia developed goggles. (2540) 880/X20

Computer Center: demonstration and viewing of large scientific computing systems, interactive systems and peripheral equipment. (2600) 880 Annex

Technical Library: displays of various library services including accessing of ERDA energy data bank and use of storage media such as microfilm and microfiche. (3140) 804

Continuous Movies of Sandia Activities. (3160) 815

Mechanical/Electrical Inspection, Machining and Ceramics Fabrication: demonstration of equipment and techniques in fabrication and inspection. (3600) 840

Glass Formulation and Fabrication: demonstration of methods and techniques, including glass blowing, in forming and fabricating glass components. (3600) 864

Instructional TV Laboratory: demonstration of the use of TV in classrooms, as a studio and as individual playback and learning facility. (4200) 892

Observing Single Atoms: demonstration of techniques to examine metal surfaces in atomic resolution and determine location and identity of individual atoms. (5144) 806/377

Interactive Graphics Sabotage Path Demonstration: use of interactive graphics to determine shortest paths to vital locations in a facility for safeguarding from attack. (5122, 5411) 806/129

Signature Recognition: demonstration of electronically recording signatures for comparison and identification. (5133) 806/201

Crystal Growing: apparatus, materials and techniques in growing crystals; display of crystals. (5154) 807/3111

Color Graphics: color pictures on a TV screen of graphic representations generated by a computer. (5162) 806/129

Accident Resistant Containers: containers designed to withstand impact, crushing and fire. Film showing container testing. (5430) 890B

Biological Clean Room: description of a waste water treatment program and samples of microorganisms found in sewage sludge. (5440) 892/1012

Total Solar Facility: total solar facility equipment, collectors, temperature storage tanks and turbine. (5700) 832

Solar Collector Test Facility: the effect of coatings on reflectance of collectors; parabolic mirror construction and a photo voltaic driven mechanism. (5700) 832

Vertical Axis Wind Turbine: demonstration of the 5-metre wind turbine. (5700) 899

Drilling Lab: experimental well drilling bits and a large rock saw; film on drilling technology. (5700) 851

Interfacial Polymerization: demonstration of polymerization occurring at the interface of two solvents to produce nylon. (5811) 805/302

Foam Making: demonstration of mixing of components and generation of rigid foam. (5813) 805/202

Gas Chromatography/Mass Spectrometry: demonstration of identification of materials and substances. (5821) 805/301

Analysis for Fluoride Ion in Water: demonstration of a specific ion electrode to identify fluoride in water. (5821) 805/302

Scanning Electron Microscope: the use of electron microscope to examine topography of materials. (5822) 805/124

Electron Microprobe: demonstration of probe to conduct quantitative analysis of complex materials. (5822) 805/312

Acoustic Emission Detection of Stress/Corrosion: detection of cracking and corrosion of materials through amplification of the sound of the activity. 805/225

Nitinol Metal Memory Device: display of nitinol metal and its ability to return to prior shape. (5832) 806/348

Composite and Solar Energy Materials: materials for mirrors, collectors and reflectors used in solar energy systems. (5842/5844) 807/2098

Testing Technology: typical and unusual x-ray and neutron radiographs, display of holograms, ultrasonics and acoustic emission in testing of materials and components. (9300) 860

Davis Gun: special gun used in terradynamics studies for firing earth penetrating projectiles. (9414) 892

Radioisotope Thermal Generator: the nuclear power source for space systems; models and photos of Mars and moon landers. (9512) 892/200

Micrographics: cameras, techniques and methods of creating microfilm and microfiche and its uses as a storage medium for data and graphics. (9632) 802/B10

Explosive Event on a Hologram: three-dimensional depiction of an explosion. (9515) 892/High Bay

Materials Life Determination: equipment and techniques for determining the life expectancy and aging characteristics of materials. (9515) 892/High Bay

Area III

Rocket Sled: demonstration of the 5000 foot rocket sled and track used to test components and hardware. Shots at 10, 11:30, 1:30 and 3:00. (9300)

Radiant Heat Facility: radiant heating in environmental testing of materials and components. (9300) 6536

Computer Terminal Video: minicomputer terminal and video display programmed for game playing. (9300) 6560

Environmental Testing Movie: a movie showing Sandia environmental testing capability and records of actual tests. (9300) 6584

High Voltage Radiographic Display: equipment and exhibit of radiographs of components and materials obtained by high voltage x-ray facility. (9300) 6635

Area V

Reactor Data Recording System: demonstrations of equipment and methods of data acquisition and its application. (1100) B21/22

Radiation Detection Analysis: instrumentation used in radiation detection and analysis. (3300) 6588

Flash X-ray Generator: demonstration and slide showing generators capable of producing currents up to 30,000 amperes. (5232) 6596

Electron Beam Generators: generators used to produce high energy electron beams. (5242, 5244, 5246) 6597

Data Acquisition Systems: equipment and techniques for recording data from the electron beam generators. (5242) 6597

Nereus Accelerators: equipment used to study ion acceleration, generation of plasmas and transport of electron beams. (5244) 6591

Annular Core Pulse Reactor: display of uses of the reactor to produce large quantities of high energy neutrons. (5241) 6588

Sandia Pulsed Reactors: exhibit of fast metal reactors used to produce large neutron fluences of high energy neutrons. (5421) 6591

Gamma Irradiation Facility: irradiated samples and demonstration of remote handling equipment. (5421) 6588

Data Acquisition Display System: demonstration of computer aided data system displaying results of processed data received from remote stations. (5423) 6588

Helium Cooling Loop: a mobile helium cooling loop for reactor safety experiments. (5422, 1135) 6588

Shock Test Performed on Space Probe RTG Units

VERTICAL SHOCK TUBE in Coyote Test Field is readied for a test of space RTG units. Manny Vigil and Tom Witherspoon (both 9335) install instrumentation. Tube is 6 metres long; 7½ kilograms of HE was detonated at the bottom of pipe to simulate a launch pad explosion.

A shock test last week in Coyote Test Field simulated the blast wave that would result if a Centaur rocket exploded on its launch pad. Test apparatus was a long (6 metres), large-diameter (3 metres) pipe, surplus from NTS, and 7-1/2 kilograms of HE. The pipe was buried vertically in the ground; the HE exploded in the bottom.

Undergoing test were mockups of three radioisotopic thermoelectric generators (RTG) planned for use on the Mariner/Jupiter/Saturn space probe. The RTG units were mounted in launch pad configuration at the open top of the shock tube. They were heated to 182°C. Heater shrouds were remotely removed just prior to the blast.

The reimbursable project was conducted for GE's Valley Forge Space Center by Coyote Test and Track Division 9335. Manny Vigil is project engineer.

"We met test specifications," Manny says, "by producing an eight millisecond shock wave of 270 psi overpressure. The test units, by the way, suffered slight damage."

Sandia provided full instrumentation data for the test including extensive photometrics coverage. Remote Areas Maintenance Division 9718 provided test support including emplacement of the pipe and site preparation.

Involved in the project were Tom Witherspoon, Dick Bohannon and Gary Laabs (all 9335), instrumentation and recording; Walt Drake (9335), explosives arming and firing; and Frank Hensley, Gail Eissele, Gerry Cobb and Sonny Holland (all 9412), photometrics. Harold Rarrick (9411) was test project manager.

McKinney Is Organic Woodworker

Bill McKinney (2552) refers to his woodworking results as "Early American Amateur," but there's nothing amateurish about the beds, chests, desk, bookshelves and other furniture he turns out in his garage workshop. He uses #2 construction wood, usually 2 x 12-inch planks; however, the finished pieces — carefully glued or bolted together, hand carved, sanded and varnished — bear little resemblance to rough lumber.

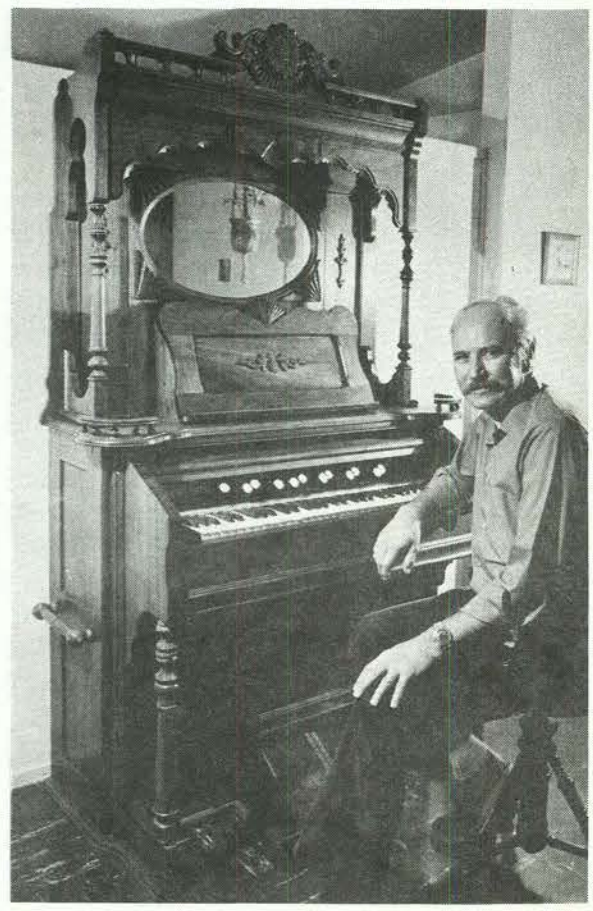
The focal point of the McKinney living room is a walnut pump reed organ. Bill didn't construct this piece but he did devote over 300 hours to a complete restoration effort. The organ, purchased new in 1883, had been ordered from a firm in Chicago at a cost of $57.50. Bill can remember playing the organ at his friend's home when he was 14 years old. The friend recently moved and gave the organ to Bill.

"It was really a mess," he says. "It had been stored in a shed for years and was full of wasp nests, bugs and dirt." Bill dismantled and cleaned every piece, including the 122 brass reeds. He replaced the bellows and repaired other damaged areas. The wood responded to six applications of oil and lots of hand rubbing. And now, Bill sits on the unique three-legged stool, which he also refinished, and pumps away. "I'm not much better than I was at age 14," he admits with a smile.

Bill's wife, Mary Nell, helps with his woodworking but has her own work room where she turns out ceramics — wind chimes, kachina wall plaques, chess pieces.

The McKinney's send unusual Christmas cards to their friends. They call them burned wood stitchery. A simple design — usually an Indian symbol — is drawn on a piece of wood. Tiny holes outlining the design are drilled through the wood, which is then burned, cleaned and redrilled. The design is completed with brightly colored yarn stitches.

The McKinneys are native New Mexicans. His parents came to New Mexico Territory from Oklahoma in 1900 and homesteaded in the Morenia Valley near Eagle Nest; Bill was born in Agua Fria, now a ghost town. The family moved to Albuquerque in 1928. Mary Nell was born in Albuquerque. The McKinneys have four sons. Bill has been with Sandia 25 years.



BILL McKINNEY (9352) rendered a few bars of "The Old Rugged Cross" while talking about the history of this pump organ. It was shipped from Chicago to Texas; later moved to Hollene, N.M. where, because of the lack of a church, it became the focal point of church services for scattered families in the area. Bill has recently restored the instrument.

Fun & Games

Basketball — Ron Allred (5844) reminds us that the basketball season is about to start and, as usual, Sandia will sponsor league play on both a recreational and competitive basis. The association will also sponsor women's teams for play in the city league if there is enough interest. Practice games begin in early November. A questionnaire has been mailed to previous players and new hires. If you're interested and didn't get a questionnaire call Ron on 4-2436.

* * *

Sandia Bicycle Ass'n. — You're cruising along a 25 MPH street and vehicles go by so fast that their draft sucks you along. Frightening. There is something you can do — call Lt. Barnett or Lt. Hawkins of the Albuquerque Police Dept. on 766-4560. They set up the weekly radar patrols and welcome citizen's recommendations on streets needing such coverage.

Free classes in bicycle repair and maintenance are being offered at the Heights Community Center, 823 Buena Vista SE, starting Saturday, Oct. 16 at 9:30 am for ten consecutive Saturdays. The classes will cover brakes, derailleurs, hubs, bottom bracket, headset, pedals, freewheel, chain, tires, tubes, and rims.

* * *

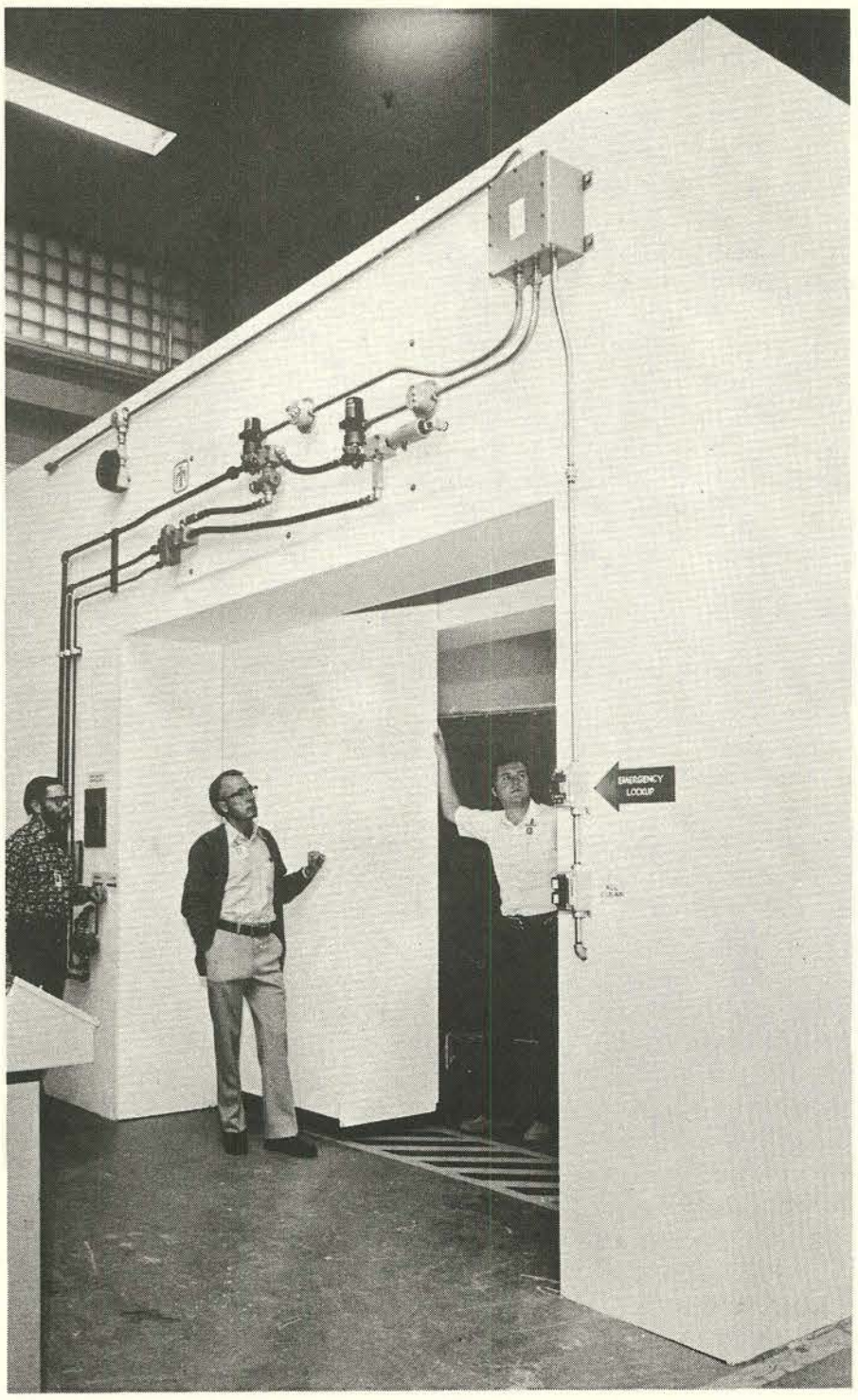
Sandia Runners — Pete Richards (5132) keeps cropping up in this column as a sort of running exemplar, and it looks like he's done it again. A marathon, as everyone knows, is perhaps the supreme running event, and completing its 26 miles has been likened to being the nearest proximation of childbirth that a man will ever experience. It's very tough. So Richards has just returned from England where he competed in the classic London to Brighton race, at 53 miles a double marathon. Pete finished 48th in a staggering 7 hours, 57 minutes; only 60 of the 106 entrants finished. The winner did it in 5:23. So how'd you feel Pete? "Very, very tired."

* * *

Tennis Enthusiasts — The Coronado Club is considering construction of several tennis courts at the Club for members' use on an annual fee basis. An interest meeting is scheduled at the club on Oct. 21 at 7:30 pm, and plans for the courts will largely depend upon interest as shown by the turnout for the meeting. The program and facilities are being planned now, and your ideas on the subject are needed and invited. Ed Leeman, Org. 2315, 4-7949, can be contacted for additional details.

* * *

Ski Swap Is Coming — ERDA's Bill Horton is chairman of this year's Ski Swap, and he reports that the 10th Swap will be held Oct. 29, 30 and 31 in the Agriculture Bldg. of the State Fair (same place as last year). Bill says to register equipment to sell on Friday the 29th from noon to 8, buy ski stuff on Saturday the 30th from 9 to 4, and on Sunday the 31st, pickup your check for equipment sold (or the unsold stuff) between 2 and 4. Skis, boots, poles and clothing, both downhill and cross country, are offered in staggering abundance at ridiculous (both ways) prices. The Swap is sponsored by the all-volunteer Sandia Peak Ski Patrol.



TO SAFEGUARD nuclear material at an assembly or manufacturing location, Marv Plugge, George Duke and Martin Kodlick (all 1751) have developed this hydraulically or gravity operated vault door which can be remotely or locally closed. Door has many features, including electronic coded switch for access.

Safeguards

Vault Door Deters Terrorists

George Duke, Marvin Plugge, and Martin Kodlick have developed an ingenious vault door that could be used to enhance physical security at assembly or manufacturing facilities. The work is an outgrowth of the Safeguards program and was done in Facilities Systems Development Division 1752.

An operating model of the door is found in Building 892's high bay area. Measuring some 2.4 by 3.0 metres, the door is hydraulically driven and unlocked by inserting the correct code into an electronic coded switch. To counter the problem posed by deliberate or accidental power failure, the door is suspended from a slightly inclined rail that enables it to be closed by gravity alone. It weighs 20 metric tons. Door thickness is .61 metres of "steelcrete" — concrete in an elaborate matrix of steel. This material is widely used in Federal Reserve banks.

A terrorist attack is one threat addressed in the security concept involving work-vaults and the use of the vault door. That concept calls for perimeter guards who, upon noting any suspicious activity, would electronically initiate door closure. Actual closure would automatically take place after some short interval during which workers would suspend operations and exit the vault. Once locked under emergency circumstances, the vault door remains locked for a timer-controlled period of time even if the correct code is inserted into the coded switch. This protects the contents even though terrorists capture a vault worker and extort the correct code from him.

The security concept recognizes that well-prepared terrorists might ultimately breach any barrier, however formidable, given enough time. The vault door is designed to thwart their efforts for a sufficiently long time to allow our own response forces to neutralize them.

Congratulations

Mr. and Mrs. Paul Konnick (2623), a son, Andrew Tyler, Sept. 25.

Mr. and Mrs. Gene Venturini (5132), a son, David Alan, Aug. 15.

Mr. and Mrs. George Samara (5130), a son, Michael Albert, Sept. 8.

feedback

To get a response to your comments and questions about Sandia Labs, complete a Feedback form (available near bulletin boards) and return it to the Feedback administrator. The substance of questions and responses of wide interest is published in LAB NEWS.

Q. To save energy, why aren't the kool shades already installed on buildings being used?

Some are taken down and many others moved aside so that they cannot do the job intended.

These shades could save many tons of refrigeration if used properly.

A. During initial phases of our energy conservation program, we received a feedback memo suggesting that the cool shades be removed during the winter and replaced during the summer. Plant Engineering made a study of the cost effectiveness of this plan and found that it would be unreasonable to take the cool shades down and put them up every year.

We did, however, communicate with the occupants of those buildings that had cool shades on adjustable tracks, informing them of the apparent gain in conservation if they would roll back the cool shades during the winter and readjust them for full coverage during the summer.

It appears that occupants have rolled back the cool shades during the winter and forgotten them.

Plant Engineering will initiate a work request to have one of the engineers survey the major buildings and issue an order to maintenance to replace those that are missing and inform the building energy monitors to request occupants in their area to replace the ones that are adjustable for full coverage and leave them there.

R.E. Hopper - 9700

Q. The Sandia Labs Weekly Bulletin is devoted largely to listing available job openings. Only a small percentage of the readership is interested in changing jobs. I suggest that the Bulletin be posted on appropriate bulletin boards, or distributed to divisions for circulation, instead of being distributed to each employee, to save cost.

A. The Sandia Labs Weekly Bulletin as currently published will be reevaluated at the end of one year. Since there are known disadvantages to posting the bulletin on official boards (many complaints are received that present job postings disappear from the boards) it will be reconsidered as a possibility when the reevaluation occurs.

The response to the Bulletin has been positive from many employees.

R.J. Edelman - 4200

Q. It is my understanding that each employee has two personnel folders, one of which contains unfavorable letters and comments. Are both folders available to the employee for them to examine?

A. There is only one personnel file in the Personnel File Room in Bldg. 832 which contains records pertaining to an employee.

An employee may see his personnel file upon request to Division 4252.

R.J. Edelman - 4200

Q. Some time ago I suggested that a hand-held calculator be added to the selection of service awards offered. I don't know whether my suggestion was instrumental, but you did add a Hewlett-Packard Model 21 — an excellent choice, in my opinion, at the time. However since then there have been drastic changes in calculator prices, and in the features offered by new models. I'd like to suggest that you re-evaluate which calculator should be offered.

A. The Service Awards Organization is currently reviewing the available handheld calculators that fall within the price range allowable for 25-year service awards. If a decision is made to make a change from the present Model HP21, the appropriate change will be made to the Anniversary and Retirement Awards SLI 4809, Appendix A.

R.J. Edelman - 4200

Q. Our division faces a space problem when we move over to Bldg. 880. One way of dealing with this problem is to put articles and the like on microfiche. At the present time this can be done only by first obtaining a hard copy of an article, then requesting from Org. 9632 the fiche, then throwing the hard copy away. Aside from the waste of paper there is the waste of my time. It would be really convenient as well as cost effective if a direct request could be made to the library for an article to be put on fiche and the latter mailed directly to the requester.

A. There are two ways to make microfiche reproductions of journal articles: (1) by removing the binding of the journal and separating the pages to be photographed and (2) by copying the needed pages on a photocopier and then photographing the hard copies. The first alternative is not practical because of the cost of rebinding and so the intermediate hard copy of an article from a journal must continue to be made in order for the micrographics group to produce microfiche.

For those individuals or organizations requiring microfiche copies of journal articles, the library will assume the responsibility of working with the micrographics division to provide this service. Requesters should annotate their Library Request Forms (FS 1075-A) to indicate that microfiche is wanted. The library already circulates many technical reports in microfiche format from its collection of nearly 500,000 fiche, and most orders for reports are also filled with microfiche.

K.A. Smith - 3100

Q. Since the nation is pursuing a crash program to develop solar energy and since Sandia Laboratories is right in the middle of solar research I'd like to make a suggestion.

In the winter time when it snows, the most treacherous roads are those with bridges or overpasses. The surface over these bridges or overpasses becomes icy. I'd like to see the Labs experiment with a solar heating system that would heat these roadways. Perhaps a reflector system heating water that in turn would circulate through copper or steel pipes under the bridges or overpasses would do the job.

A. Thank you for your suggestion to use solar energy to heat bridges and overpasses in the winter.

One of the main reasons we want to develop solar energy is to substitute its use for oil and natural gas in existing applications, like water heating and space heating.

The heating of road surfaces with fossil fuels has not been considered economical and is seldom implemented. The application of solar energy to this purpose would therefore not displace the present use of fossil fuels and would likely be non-economical with today's technology.

J.H. Scott - 5700

Q. Why can't we get a more complete description of posted graded vacancies?

It would help us to bid more intelligently if the job requirements were better described.

A. When the job posting of graded represented jobs was introduced in 1955, the manner of "advertising" was worked out in negotiations with the unions. To ensure consistency in posting information on the job to be filled, it was agreed that the Job Function as set forth on the authorized Job Description would be used.

It was also agreed that any employee interested in a job posting would be able to see the entire job description if they so desired. This is specifically covered in our labor agreements as "Information concerning the requirements of the job shall be made available to all interested employees." Copies of job descriptions of posted graded vacancies are available for study with the supervisor having the vacancy; the Personnel Representative of the Vice-Presidency having the vacancy; the Personnel, Labor Relations or Compensation Department offices; and the union.

R.J. Edelman - 4200

Sympathy

To Louis (1752), Paul (1323), and James (2135) Fjelseth on the death of their father in Albuquerque Oct. 6.

SAMST, MINT & ANT

New Reentry Materials Do More, Cost Less

During reentry, a missile's survival depends on its heat protection system. Lose it and it's one-half second to vaporization. Designing and testing nosetips and heat shields for the Advanced Ballistic Reentry Systems (ABRES) office of the Air Force's Space and Missile Systems Organization is the task of the Exploratory Systems Division V, 1323, under Don Rigali. Many other organizations are also involved in the several ABRES reimbursable projects coordinated by 1323. And testing today is much more efficient than in the recent past.

The division has launched six successful RV flight tests since 1970. Three utilizing Athena boosters flew from Green River in Utah to White Sands; another three using Minuteman I boosters flew from Vandenberg AFB in California to Kwajalein Atoll. All but one of these flight tests were part of the SAMAST (Sandia ABRES Materials and Systems Test) Program. The tests were to obtain data on carbon heat protection systems pioneered by Sandia. "At first, we tested intermediate sized RV's, one at a time, at lower reentry velocities (about 18,000 feet per second), then a larger vehicle with a small piggyback missile and, now, the present system which has four small missiles," says Don.

The most recent material of choice for heat protection purposes is carbon-carbon, a carbon substrate impregnated with a carbon matrix. The 4000°C (7200°F) temperature the nosetip and heatshield sees is above the melt temperature of any material. "But during reentry, the solid carbon-carbon reacts with the air to form gaseous carbon monoxide and carbon dioxide — and does not melt — at a rate we can handle for the 30 seconds or so it takes for reentry," says Don.

One of ABRES's tasks is to evaluate many reentry protection materials, incuding carbon-carbons of varying densities, strengths, thicknesses, substrates, impregnation methods, etc. Until recently, each missile flight could test only one type. And comparing the data from two types was complicated by the fact that atmospheric and flight conditions during any two flights are seldom identical.

It was to provide comparative data on two carbon-carbon types during the same test flight that Don's people came up with MINT and, recently, ANT. MINT (Miniature Instrumented Nosetip Test) was the first demonstration that, through the use of miniature vehicles, several tests could be run at the same time in the same atmospheric conditions — and at a considerably reduced cost.

"The key," explains Don, "is to mount a small instrumented missile, the MINT, between a full-sized one and a Minuteman booster. At a predetermined point in the trajectory, the larger missile is disengaged, as is the MINT, which then follows about the same trajectory as the larger one to a water landing off Kwajalein." The miniature telemetry package for MINT was a technological challenge met by the Instrumentation Applications Department 9480.

ANT COLONY — The four noseconse can now be flight-tested simultaneously. The ANT (Advanced Nosetip Test) program is headed by Don Rigali, supervisor of division 1323, Marlyn Sterk, program director, and Ron Johnson, project leader.

Success with MINT led to ANT (Advanced Nosetip Test). An ANT event involves four small missiles (each approximately 1 m long and 0.25 m base diameter) mounted on a Minuteman. A specially designed spin ejector adaptor kicks away two missiles at a time with different separation velocities to prevent collision with each other. A MINT-type telemetry package is mounted on each ANT missile.

"Our first ANT flight in February," says Don, "was unbelievably successful. Everything worked exactly as planned. So for the first time we were able to compare data from four different nosetip and heat shield materials. And we did it for not much more than the cost for a test of one material."

Don credits much of the mission's success to close cooperation between many groups and a number of people in his organization (especially program directors Marlyn Sterk on the ANT program and Lawton Miller on the SAMAST/MINT program). Approximately 100 Sandians and 15 outside agencies are involved in the development and testing of these vehicles. The next ANT flight is scheduled for spring 1977.

Tutoring

APS Wants You

At least 6000 volunteers are needed in the Albuquerque Public Schools this year according to Everett Miller, Staff Coordinator for the Volunteer Program. Sandians are especially well qualified for many tasks.

Tutoring is often requested both by parents and teachers. Students need individual help in basic subjects, such as reading and arithmetic. Tutoring requests range all the way from the first grade through high school.

One high school needs volunteers for its remedial reading program. Another has made specific requests for help in interpreting Japanese, Chinese, Laotian, Cambodian, Vietnamese, Swedish, Iranian, and French. A Spanish speaking person with scientific background is also needed. A physics and chemistry volunteer is needed.

People with specific skills or who have knowledge in various fields often are used as resource persons in classrooms. Photographers, animal trainers, rock hounds, stamp and coin collectors, and physicists are examples.

Many schools use volunteers to assist in the library, while others request help in their offices and for the nurse. Volunteers for elementary schools may contact the school nearest to where they live, or all volunteers may phone 242-1056 for placement. Call this number also if you are interested in serving on the Board of the Volunteer Program.

Take Note

Security's Dody McKelvey reports that they now have a supply of ball-point pens that bear a security slogan. The pens were acquired for distribution to people attending organization security meetings and can be obtained by calling 4-8102, or by picking them up, Bldg. 802, room 109.

* * *

If your home address has changed during the past year, you should file a change of address card with the Dept. of Motor Vehicles to ensure that you receive renewal notices for driver's licenses and vehicle registration. DMV has change-of-address cards for this purpose, available at the local office or you may call on the DMV toll-free line, 1-800-432-4407, to request the cards.

* * *

George Wright of Aerothermodynamics Division 1333 was recently elected chairman of Committee E-21 on Space Simulation and Applications of Space Technology of the American Society for Testing and Materials (ASTM). The Committee promotes knowledge, does research, and develops standards in the field of space simulation. George has been at Sandia since 1961 and came here from the University of Missouri where he was assistant professor of mechanical engineering.

* * *

The South Highway 14 Village Project has received many donations of hard cover books. Because of their size, these books don't fit readily on the Project's paperback bookstands. *LAB NEWS* has set up a bookstand just for these hard covers outside its office in Bldg. 814. Drop by and look them over.

* * *

LAB NEWS cartoonist Felix Padilla (3421) was recently awarded second place for his large acrylic painting, "Old Mountain Trail," at the Glenwood Springs, Colo., Annual Arts Festival. Earlier this summer the painting was honored at the Tri-State Art Festival in Carlsbad.

* * *

Three programs, panel presentations and discussions, are scheduled by the downtown YWCA, 316 Fourth SW, dealing with divorce, women's rights and the Equal Rights Amendment. The programs are set for Oct. 20, Nov. 3 and Nov. 17 at 7:30 p.m. The public is invited. More information available at 247-8841.

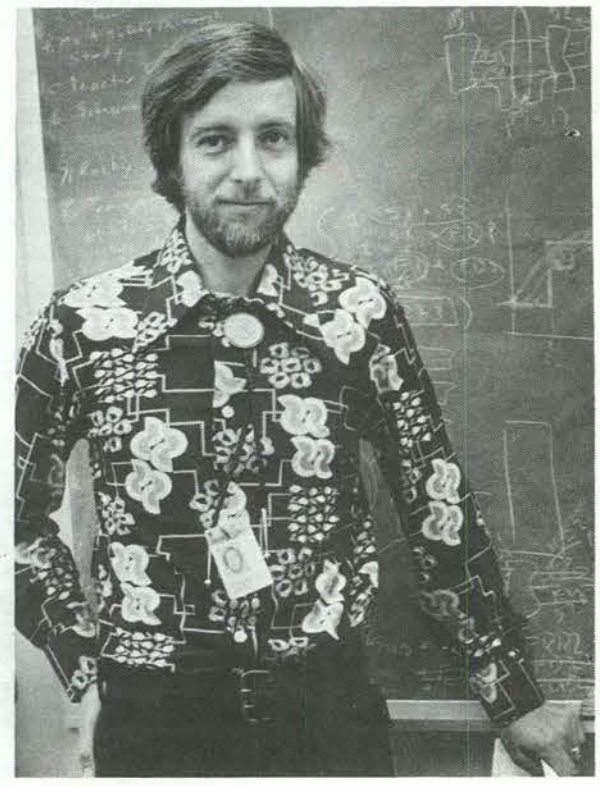
* * *

The New Mexico Bicentennial Concert is scheduled for Sunday, Oct. 17, at 4 pm in Keller Hall, UNM. Music has been written by New Mexico composers and will be performed by the music faculty of UNM and NMSU. The program will also be presented at Kennedy Center in Washington on Nov. 4.

* * *

At the Oct. 20 meeting of ASME, Jerry Alcone (5742) will discuss heat pumps, John Kusianovich solar collectors to heat water, and Danny Martinez active and passive solar heating. It will be held at the VFW Hall, Lomas and Washington NE, with dinner starting at 6:30 and the program at 8 pm. Call Fred Northrup, 4-3973, or Don Cox, 4-6753 for reservations.

DOUG WEAVER (2141-1) and VIC WELLS (2141)



DICK SMITH (1233)

Supervisory Appointments

VIC WELLS to supervisor of Integrated Circuit Processing Division 2141, effective Oct. 1.

Vic joined the Labs in January 1974 to develop the processes required for the fabrication of silicon integrated circuits. In addition he served as the 2100 coordinator with Plant Engineering and building contractor in the design and construction of Sandia's new microelectronics facility (Bldg. 870). He earned BS and MS degrees in EE from the University of Wyoming and was awarded his PhD in EE from the University of Arizona in 1972.

A member of IEEE and the Electrochemical Society, Vic serves on several committees within these groups and is a past chairman of Electron Device group — Albuquerque Section. Off the job he enjoys camping, woodworking and refinishing antiques as well as bicycling. Vic and his wife Karen have four children and live at 8218 Connecticut NE.

* * *

DOUG WEAVER to supervisor of Semiconductor Development Laboratory Section 2141-1, effective Sept. 1. Since joining the Labs in January 1967 as an ESA, Doug has done work concerned with radiation effects, performing thermomechanical studies at NTS and SLA; worked with a device analysis group and, most recently, has been involved in the construction and operation of two semiconductor labs.

Doug earned his associate in applied science degree from the Bell and Howell School (formerly DeVry Institute). His favorite leisure time activities include camping and backpacking. Doug, his wife Sue and their two children have just returned from a three-week camping vacation. The Weavers live at 8208 Comanche NE.

* * *

DICK SMITH to supervisor of Safety Assessment Technologies Division 1233, effective Oct. 16. He joined Sandia in March 1967 as a staff member in a weapon systems reliability division. More recently he has been assigned to the division which he will now supervise, working in the field of weapons safety. He was with IBM in San Jose, Calif. for a year and a half before coming to the Labs.

Dick earned BS and MS degrees in ME from the University of Arizona. He is a registered professional engineer in New Mexico, and a member of ASME. Dick has just recently completed construction of his new home in Cedar Crest. He enjoys gardening and hiking. He and his wife Eva have a three-year-old son.

Retiring

Irene Kay (3254)

GROUND HANDLING EQUIPMENT designed to load the "Big Test Vehicle" of readiness program days into a B-52 is being transferred to NASA for use in the space shuttle program. Equipment has been idle for eight years but is still functional. Associated with the BTV program were (l to r) John Moyer (1751), Dean Wolf (1332), Ira Holt (1332), Bud Murphy (9487) and Mike Schellhase (1243).

Sandia Saving NASA a Bundle

Special Loading Equipment Reusable

Sandia is saving the government much money —maybe a million — with the transfer to NASA of ground handling equipment left over from the air drop readiness program. The equipment was built to transport and load the "Big Test Vehicle" of the readiness exercises into the bomb bay of a B52. Its new job will be to load Space Shuttle parachute test vehicles, also upon a B52.

The space shuttle concept calls for reusable rocket boosters. These will be jettisoned after the fuel is spent and will float to earth by parachute. The 170,000 lb. boosters will require some of the largest and heaviest parachutes ever built. Sandia's Aerodynamics Department 1330 is consultant to NASA for the parachute development program. Dean Wolf (1332) is project leader for this consulting work and suggested use of the surplus Sandia handling equipment to NASA.

The readiness program "Big Test Vehicle" (BTV) was just that — it measured some 25 by 6 feet and weighed up to 45,000 pounds depending on the particular payload. The BTV program, under the direction of John Moyer (1751), was Sandia's answer to the congressional directive that the US be ready to resume immediately atmospheric nuclear testing should the limited test ban treaty of 1963 be violated. The BTV incorporated standardized fuzing, firing, and telemetry systems but was designed to be flexible enough to carry nearly any nuclear device.

The BTV transporter, designed by Mike Schellhase (1243), and loader, designed by Bob Stinebaugh (1142), were kept in storage by the Air Force and recently returned to Sandia and declared surplus. A.N. "Bud" Murphey (1248) was responsible for all readiness equipment and informed Dean that the loaders and transporter would be available to NASA.

Because the BTV was such a tight fit in the bomb bay the loader had to be capable of accurately pitching, yawing and rolling the vehicle as well as lifting it into position.

"We dug up some old instruction manuals from the files and checked out the equipment," says Ira Holt (1332), who was responsible for the BTV parachute system and is working with Dean on the space shuttle system. "We half expected hydraulic fluid to shoot out of holes everywhere. Would you believe after eight years the mechanical, hydraulic and electrical systems are still functional? NASA can easily adapt the equipment to its needs."

Bob and Mike say that it is difficult to put a dollar figure on the amount of money that use of the Sandia equipment will save NASA. "It would take a bundle to start from scratch and replace this equipment at today's prices. It could easily run into hundreds of thousands of dollars. We feel pretty good about the transfer because it will save money — but, personally, we're proud of building a good system and glad that it still has a useful life," they agreed. Fred Pfeffer (1135) and George Browning (3413) are handling the administrative transfer of the equipment to NASA.

Authors

B. Morosin (5154) and P.S. Peercy (5132), "Structural Studies on Hydrolysis Products of Ti, NB and ZR Alkoxides," Vol. 40, No. 2, CHEMICAL PHYSICS LETTERS.

A.C. Switendeck (5151), "A Theoretical Model for Site Preference of Transition Metal Solutes in Fe_3Si," Vol. 19, No. 6, SOLID STATE COMMUNICATIONS.

J.P. Brainard (2352), "Vacuum Breakdown Induced by Ionic Bombardment of Cathode Electrode," Vol. 47, No. 7, JOURNAL OF APPLIED PHYSICS.

D.M. Follstaedt (5151), et al, "NMR Study of Copper with Titanium Impurities," Vol. 14, No. 1, PHYSICAL REVIEW B.

R.A. Gerber (5212), "Ultrahigh Power Lasers for Practicable Applications," Vol. 15, No. 7, APPLIED OPTICS.

K.W. Schuler (5163) and J.W. Nunziato (5131), "The Unloading and Reloading Behavior of Shock-Compressed Polymethyl Methacrylate," Vol. 47, No. 7, JOURNAL OF APPLIED PHYSICS.

P.D. Thacher (9532), "Calorimeters for Pulsed Lasers-Calibration," Vol. 15, No. 7, APPLIED OPTICS.

J.R. Freeman (5241), "Radiation Patterns from Electron Beam Fusion Targets," Vol. 4, No. 3, PLASMA SCIENCE.

J.R. Asay (5167), L.P. Mix and F.C. Perry (both 5242), "Ejection of Material from Shocked Surfaces," Vol. 29, No. 5, APPLIED PHYSICS LETTERS.

K.L. Brower (5111), "EPR of a <001> Si Interstitial Complex in Irradiated Silicon," Vol. 14, No. 3, PHYSICAL REVIEW B.

D.S. Drumheller (5167), "Note on a paper by M. Ben-Amoz," Vol. 14, No. 9, INTERNATIONAL JOURNAL OF ENGINEERING SCIENCE.

M.M. Karnowsky (5831) and F.G. Yost (2151), "The Au-In-Pb System: The $AuIn_2$-In-Pb Portion," Vol. 7, No. 8, METALLURGICAL TRANSACTIONS A.

F.C. Perry (5242) and M.M. Widner (5241), "In-depth Heating by an Intense Relativistic Electron Beam," Vol. 29, No. 5, APPLIED PHYSICS LETTERS.

P.M. Richards (5132), "Susceptibility of an Impure Heisenberg Linear Chain: Measurement of Impurity-Host Exchange and Anisotropy Crossover," Vol. 14, No. 3, PHYSICAL REVIEW B.

F.G. Yost, F.P. Ganyard (both 2151) and M.M. Karnowsky (5831), "Layer Growth in Au-Pb/In Solder Joints," Vol. 7, No. 8, METALLURGICAL TRANSACTIONS A.

H.T. Weaver (2354) and J.E. Schirber (5150), "Effect of Pressure on Knight Shifts in Rare-Earth Singlet Ground-State Systems," Vol. 14, No. 3, PHYSICAL REVIEW B.

R.R. Boade (5167) and O.L. Burchett (1541), "Electron-Deposition-Induced Spallation in Tantalum," Vol. 47, No. 8, JOURNAL OF APPLIED PHYSICS.

J.C. Cummings (5262), "Experimental Investigation of Shock Waves in Liquid Helium 1 and 2," Vol. 75, Part 2, JOURNAL OF FLUID MECHANICS.

R.A. Gerber and E.L. Patterson (both 5212), "Studies of a High-Energy HF Laser Using an Electron-Beam-Excited Mixture of High-Pressure F_2 and H_2," Vol. 47, No. 8, JOURNAL OF APPLIED PHYSICS.

M.A. Sweeney (5241), "Ablation-Driven Targets for Electron-Beam Fusion: Density Problem with very Lox-Z Ablators," Vol. 29, No. 4, APPLIED PHYSICS LETTERS.

H.J. Stein (5112), "Absorption Edge and Ion Bombardment of Silicon Nitride," Vol. 47, No. 8, JOURNAL OF APPLIED PHYSICS.

G.C. Tisone and J.M. Hoffman (both 5212), "Optical Energy Extraction from Electron-Beam-Initiated H_2-F_2 Mixtures," Vol. 47, No. 8, JOURNAL OF APPLIED PHYSICS.

F.K. Truby (5215), "Stability of Multiatmosphere H_2-F_2-O_2 Mixtures for HF Laser Studies," Vol. 29, No. 4, APPLIED PHYSICS LETTERS.

P.J. Feibelman (5151), "Exact Microscopic Theory of Surface Contributions to the Reflectivity of a Jellium Solid," Vol. 14, No. 2, PHYSICAL REVIEW B.

R.D. Nasby (5155) and R.K. Quinn (2516), "Photo-assisted Electrolysis of Water Using a $BaTiO_3$ Electrode," Vol. 11, No. 8, MATERIALS RESEARCH BULLETIN.

G.C. Nelson (5825), "Search for Preferential Sputtering in Ag/Au Alloys," Vol. 13, No. 4, THE JOURNAL OF VACUUM SCIENCE AND TECHNOLOGY.

R.K. Quinn (2516), R.D. Nasby (5155) and R.J. Baughman (5154), "Photoassisted Electrolysis of Water Using Single Crystal a-Fe_2O_3 Anodes," Vol. 11, No. 8, MATERIALS RESEARCH BULLETIN.

H.J. Rack (5832), "Notch Constraint Effects on the Dynamic Fracture Toughness of an Unaged Beta Titanium Alloy," Vol. 24, No. 2, MATERIALS SCIENCE AND ENGINEERING.

Speakers

G.A. Samara (5130), R.S. Berg (5834) and B. Nasby (5155), "Low Cost Thin Film CdS-Cu2S $_2$Solar Cell Development Using Chemical Spraying," National Solar Photovoltaic Program Review Meeting, Aug. 3-6, Orono, Maine.

R.L. Iman (1223), "A Comparison of Several Rank Tests for the Two-Way Layout," American Statistical Association annual meeting, Aug. 24, Boston.

R.C. Hughes (5814), "High Field Transport of Excess Electrons and Holes in Amorphous SiO_2," International Conference on Electrons in Fluids, Sept. 5-11, Banff, Alberta, Canada.

D.M. Follstaedt (5151) and A. Narath (5000), "A Nuclear Resonance Study of Local-Moment Fluctuations in CuMn"; D.M. Follstaedt, A. Narath and W.J. Meyer (2112), "Anisotropic Conduction-Electron Exchange in Dilute Rare Earth Alloys: NMR in Au ^{173}Yb and LA31PCe"; P.M. Richards (5132), "Measurement of the Susceptibility of an Impure Heisenberg Linear Chain Antiferromagnet TMMC:Cu," International Conference on Magnetism, Sept. 6-10, Amsterdam, The Netherlands.

B.F. Blackwell (1333), "Status of the ERDA/Sandia 17-Metre Darrieus Turbine Design," International Symposium on Wind Energy Systems, Sept. 7-9, Cambridge, England.

P.J. Chen (5131), "Some Interesting Aspects of Waves in Solids," invited general lecture at 18th Polish Solid Mechanics Conference, Sept. 7-14, Wisla, Poland, and The Royal Institute of Technology, Sept. 13, Stockholm, Sweden.

R.D. Moyer (9532), "EVAL-A System for Evaluating Automatic Network Analyzer Performance," Fall meeting of Automatic RF Techniques Group, Sept. 9-10, SLA.

H.M. Stoller (5730), R.G. Hay and C.L. Schuster (both 5733), "A Status Report on the MHF Mapping and Characterization Program," 2nd annual ERDA Symposium on Enhanced Oil & Gas Recovery, Sept. 9-10, Tulsa, Okla.

W.K. Tucker (5233), "PULSAR, An Unconventional Topping Stage"; W.R. Abel (2531), "Development of a 25-Year, 25 mW RTG"; G.J. Jones (2531), "Development of a Small Radioisotopic Heat Source"; D.G. Schueler (5719), "The ERDA Photovoltaic Systems Definition Project," 11th Intersociety Energy Conversion Engineering Conference, Sept. 12-17, State Line, Nev.

D.A. Dahlgren (5411), B.M. Butcher (5167) and N.J. Magnani (5831), "Experimental Results of the Interaction of Molten Core Materials with Concrete," Specialists Meeting on the Behavior of Water Reactor Fuel Elements Under Accident Conditions, Sept. 13-16, Nord-Torpa, Norway.

H.C. Monteith (5411), "Science and Engineering Careers," AFWL Program for Minority Students, Aug. 12, Albuquerque.

G.C. McDonald (9623), "Sandia Labs — Federal R&D," Clovis Kiwanis Club, Aug. 18.

C.L. Olson (5241), "Status of the Sandia Collective Acceleration Program," Joint Conference on Particle Beam Technology, July 7-9, KAFB; and, "Pulsed Power Accelerators: Collective Acceleration and Ion Diodes," Summer Study of Heavy Ions for Intertial Fusion, July 19-30, Berkeley, Calif.

P.S. Peercy (5112), "Optic-Acoustic Interactions in Rare Earth Pentaphosphates," Bell Labs, Aug. 30, Murray Hill, N.J.

J.S. Pearlman (5214), invited talk, "Evaluation of Absorption Mechanisms in Laser Produced Plasmas," Technical Seminar, Sept. 8, LASL .

W.V. Velez (5121), "Structure Theorems for Radical Extensions of Fields," Mathematics Department Colloquium, Sept. 9, UNM.

C.S. Johnson (9421), "An Adaptive Intrusion Data System for Alarm Sensor Assessment," 46th Meeting of the Data Reduction & Computing Group, Sept. 13-17, KAFB.

J.W. Reed (5443), "Guidelines for Environmental Impact Statements on Noise (Airblast)," 17th DOD-Explosives Safety Board Safety Seminar, Sept. 14, Denver.

R.A. Benham, F.H. Mathews and P.B. Higgins (all 9355), "Light Initiated Explosive Application to Impulse Testing of Complex Shaped Structures," The Joint JOWOG-6/SubWOG-268 Meeting, Sept. 14-16, Albuquerque.

M.J. Landry (2542) and W.K. Ream (9421), "Acoustical High Speed Holographic Framing Camera," ELECTRO-OPTICS/Laser '76, Dept. 14-19, New York, N.Y.

J.H. Graham (3646), "Sandia Laboratories DNC System," Society of Manufacturing Engineers, Sept. 16, Albuquerque.

T. Gerlach (5831), "Steepest Descent Equilibrium Calculations in Geochemical Systems," NATO Advanced Study Institute on "Thermodynamics in Geology," Sept. 30, Merton College, Oxford, U.K.

W. Herrmann (5160), "The Role of Research at Sandia," NMIMT, Sept. 21, Socorro.

PANCAKES, complete with butter and maple syrup, delight Shirley Goodyear. Her boss, Szabo manager Dave Foster, samples the chili rellenos. Believe it or not, these and other non-traditional vending machine fare are now available in the four major vending areas.

P.J. Chen (5131), "Wave Propagation in Dielectrics with Memory," Department of ME, Rensselaer Polytechnic Institute, Sept. 20.

B.T. Preas (2142), "Circuit Analysis Based on Mask Information," IEEE CANDE Workshop, Sept. 20-21, St. Charles, Ill.

S.T. Picraux (5111), "Hydrogen Interstitial Occupancy Sites and Clustering in Refractory Metals"; S.L. Pohlman (5831) and W.R. Hoover (5844), "The Effects of Thermal Exposure on the Electrochemical and Mechanical Properties of Boron Reinforced Aluminum Composites"; H.J. Rack (5832), "Intergranular Failure of Aged RMI 38644," TMS-AIME Fall meeting, Sept. 20-23, Niagra Falls, NY.

C.E. Hackett (5262), "The Development of Laser Velocimetry for the Measurement of Gas Velocities inside the Cavity of a Combustion Driven Chemical Laser," Workshop on "Fluid Mechanics in the Chemical Laser Cavity," Sept. 21, Redstone Arsenal, Huntsville, Ala.

E.C. Cnare (5233), "Staged Explosive Generators"; M. Cowan (5230), "Nondestructive Flux Compression Generators"; A.E. Binder (2315), "Survey of Small Compressed Magnetic Field Generators"; J.E. Gover (2315), "A Survey of Firing Systems Technology Development at SLA"; R.A. White (2315), "High-Energy Repetitive-Pulse, Underwater-Spark Explosion Generator Design"; T.H. Martin (5245), "Proto II," Pulsed Power Systems Workshop, Sept. 21-23, Naval Surface Weapons Center, Va.

H.H. Madden and J.E. Houston (both 5114), "The KVV Auger Spectrum of Oxidized Lithium"; J.A. Panitz (5114), "Deuterium Depth Profiles in Metals Using Imaging Field Desorption"; S.J. Niemczyk (5151), "Theoretical Studies of Tungsten Carbide"; R.R. Rye (5114), "Reaction of Atomic Hydrogen with Carbon"; W.J. Kass (5834), "Thermal Desorption Measurements of Helium-Ion Implanted Erbium Tritide"; G.B. Krefft (5112), "Ionization-Stimulated Annealing Effects on Displacement Damage in Magnesium Oxide"; D.F. Cowgill (2353), "Dynamic Implant Profiling by Low-Energy Nuclear Reaction Spectroscopy"; W.J. Camp (5151), "Theory of Helium Detrapping and Release from Metal Tritides"; L.C. Beavis (2353) and W.J. Kass (5834), "Room Temperature Desorption of Helium-3 From Metal Tritides A Tritium Concentration Effect on the Rapid Release of Helium from the Tritide," AVS National Symposium, Sept. 21-24, Chicago.

A.C. Switendick (5151), "Atomic Influences on the Structure and Electronic Structure of Transition-Metal Interstitial Systems," Workshop on Electronic Structure and Phase Stability in Metals and Alloys, Sept. 21-24, Liege, Belgium.

L.S. Nelson (5443), "Significance of Streamer Combustion in the PAGE Plutonium Aerosol Generation Experiment," Seminar, Inhalation Toxicology Research Institute, Lovelace Foundation, Sept. 23, Albuquerque.

R.E. Luna and L.S. Nelson (both 5443), "PAGE Plutonium Aerosol Generation Experiment"; T.N. Simmons (3312), "Sandia Laboratories Electron Beam Fusion Facility - Health Physics Aspects"; G.E. Kaye (3312), "Radiation Gauging in Reentry Systems," Fall 1976 meeting, Rio Grande Chapter, Health Physics Society, Sept. 24, Albuquerque.

C.E. Barnes (5133), "Development of Efficient, Radiation-Insensitive GaAs:Zn LEDs," '76 North American Symposium on Gallium Arsenide and Related Compounds, Sept. 26-29, St. Louis, Mo.

G.C. Nelson (5825), "Elemental Analysis of Soil Adjacent to Penetrators Air Dropped into Loess Sediment," Conference on Ion Beam Surface Analysis, Sept. 26-29, Deerwood, Minn.

R.W. Mottern (9351), "Stop-Motion Radiography," Fall Conference of the American Society of Nondestructive Testing, Sept. 27-30, Houston, Texas.

C.S. Johnson (9421), "An Adaptive Intrusion Data System," International Telemetry Conference, Sept. 28-30. Los Angeles.

P.M. Richards (5132), "NMR and Monte-Carlo Studies of One-Dimensional Superionic Conductors," Seminars: Bell Laboratories, Sept. 29, and Princeton Univ., Dept. of Chemistry, Sept. 30.

R.A. Graham (5131), "A New Technique for Measurement of Third-Order Piezoelectric Stress Constants"; I.J. Fritz (5132), "Ultrasonic Study of $BaTiO_3$ Ceramic Under Uniaxial Stress," 1976 Ultrasonics Symposium, Sept. 29-Oct. 1, Annapolis, Md.

H.P. Stephens (5842), "A Refrigerant-II Calorimeter for Measurement of Steady-State Powers," 31st Annual Calorimetry Conference, Sept. 29-Oct. 2, Argonne, Ill.

More On Storm Windows

Following our last item on this subject, Jim Powell (5423) called to report his experience in making storm windows for his house. After checking around, he concluded that an aluminum extrusion offered by the HC Glass Co. on Zuni SE was superior to other products; at 30¢/ft. it's cheaper and comes with a rubber weather strip already around the outside edge. Jim is making his own and reckons that a 3x3 ft. window costs $10.35, total. The glass company will make the windows for you, using double strength glass, for $2 per square foot. In Jim's words, however, making them yourself is a "cinch," especially since the HC outfit cuts the aluminum to your specifications. They even have a good method for accommodating arch windows. "DC" is the man to contact at HC.

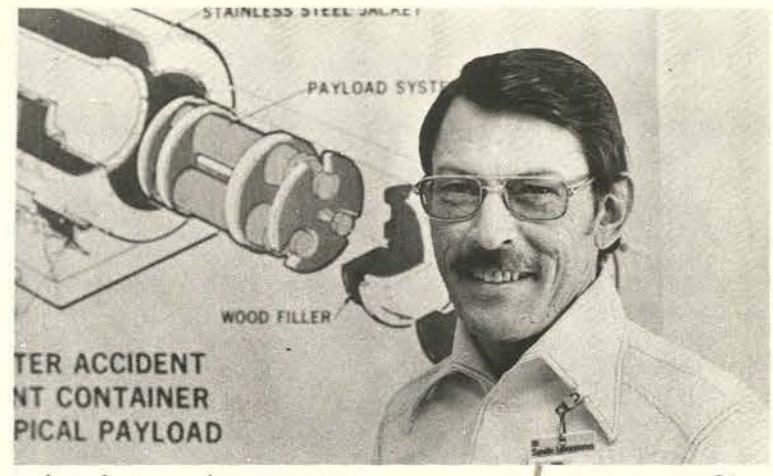
We also note a Sutherland Lumber ad this week: "Storm Window Kits, includes pre-cut vinyl, nailing strips, rubber spline, polyethylene sheeting and nails, sizes can be trimmed. Small 30" x 46" . . . $3.75, Medium 38" x 58" . . . $5.30, Large 46" x 70" . . . $6.75." These are probably not home beautiful windows but might be acceptable for those home windows where appearance is not a factor.

MILEPOSTS

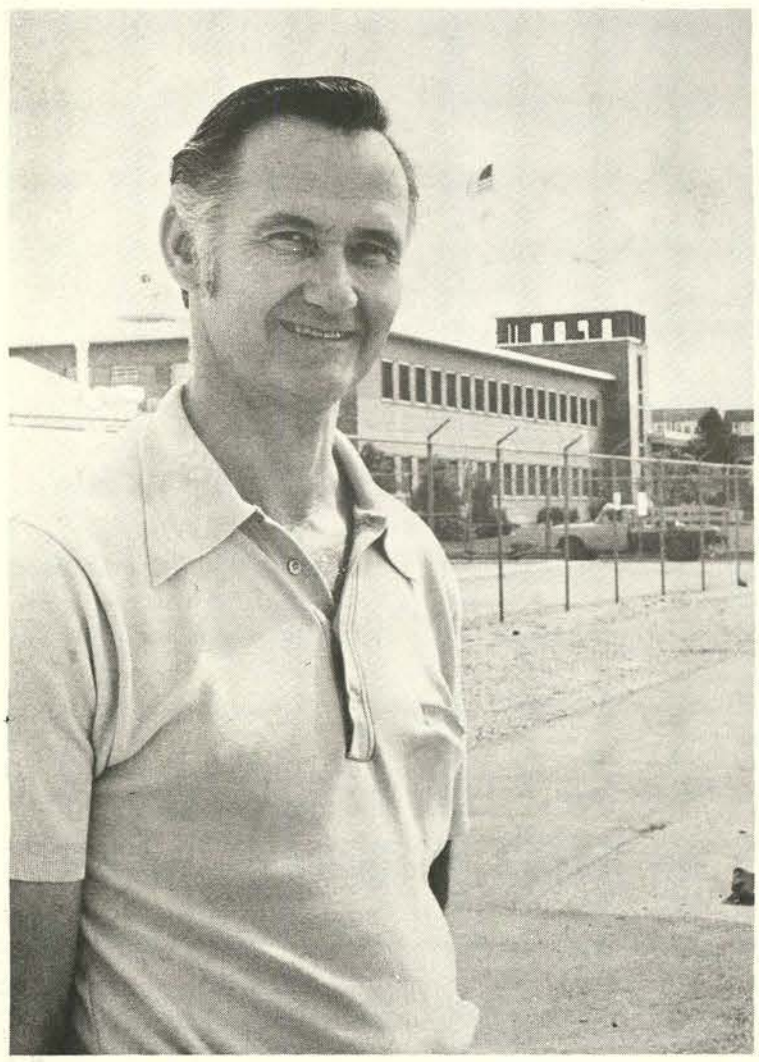
LAB NEWS

OCTOBER 1976

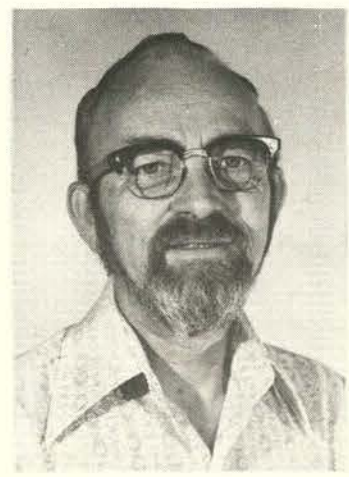
Douglas Smathers - 1735 10



Bob Ledgerwood - 1713 20



Vern Duke - 9751 10



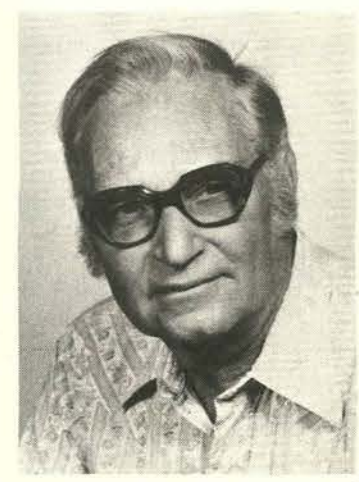
Sandy Sandgren - 1125 20

Richard Terwilliger - 9524 20

Don McGinnis - 2632 10

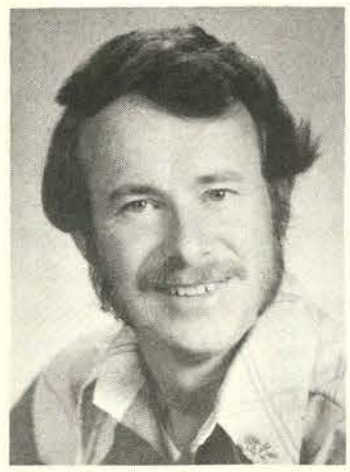
Price Hennan - 8252 25

Ed Roth - 1314 25



Walter Self - 3623 25

Matt Connors - 8266 25



Bob Graham - 8432 15

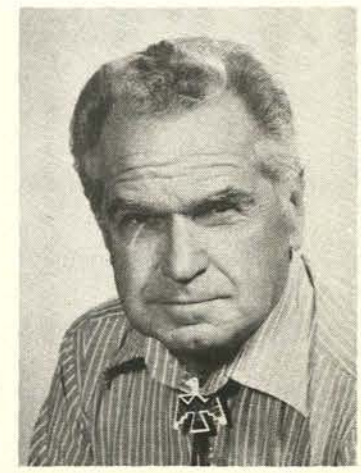
Erwin Stewart - 9712 20

David Mayhew - 9473 25

Odelio Otero - 3622 20

Gary Graham - 3645 10

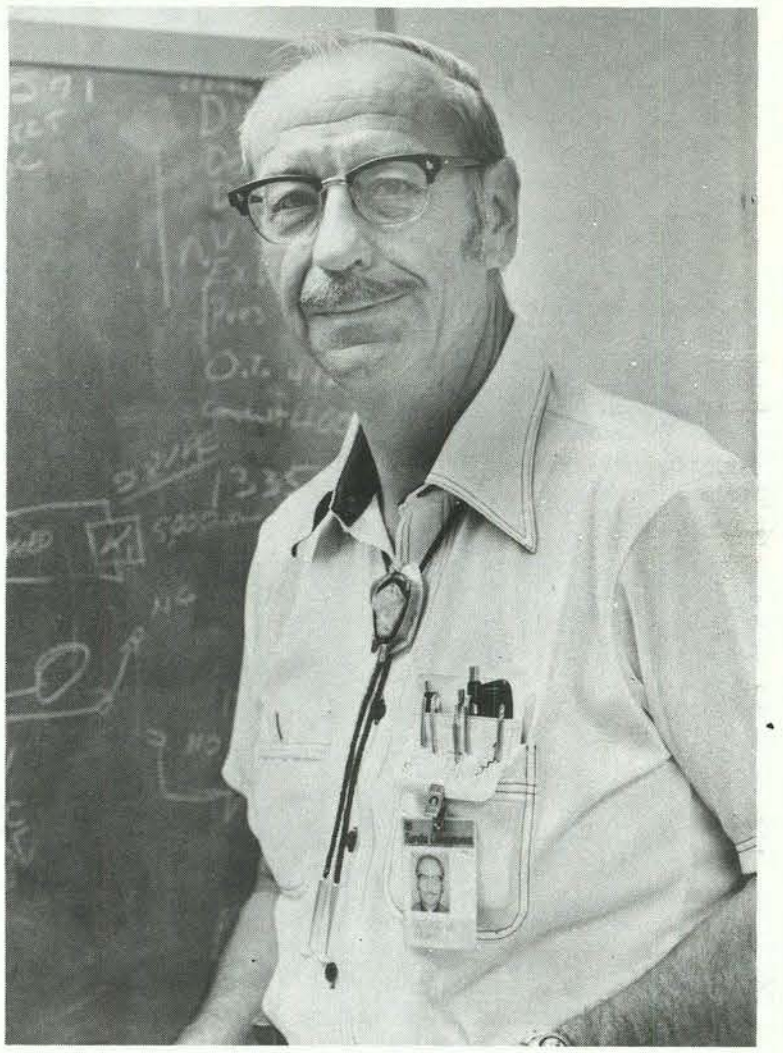
Art Clark - 9330 25



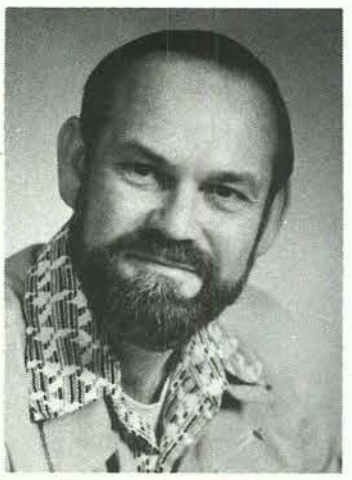
Don Grebe - 1731 25

Jean Stuart - 8256 15

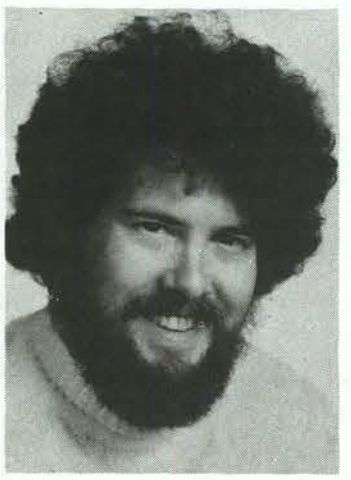
Florenio Baldonado - 3421 25



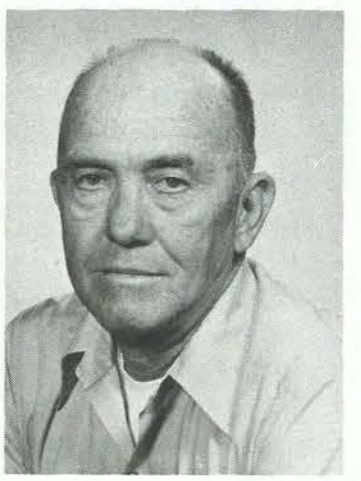
George Pasko - 1710 25



Bill Moore - 8184 10

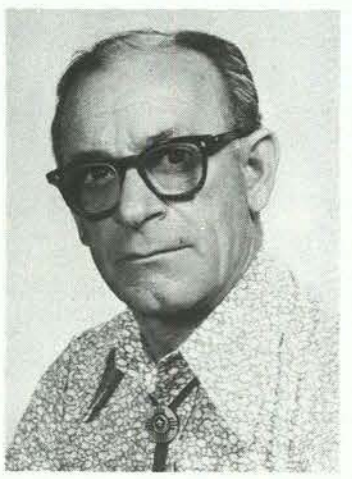


Nick Wittmayer - 8413 10

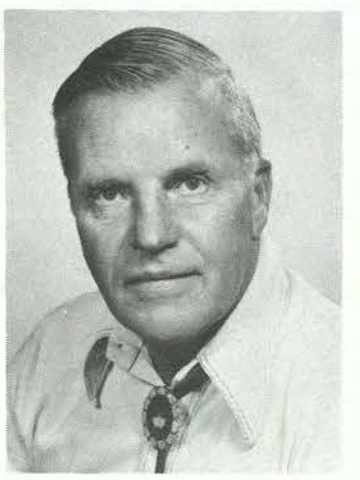


Leon Moritz - 5733 25

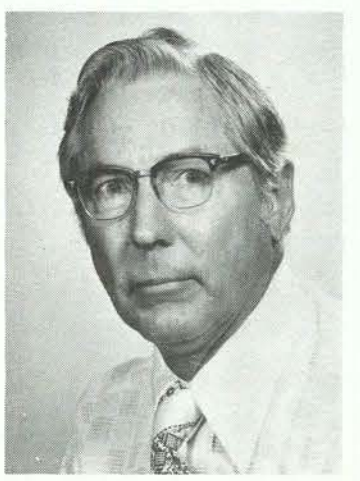
C.W. Young - 9482 25



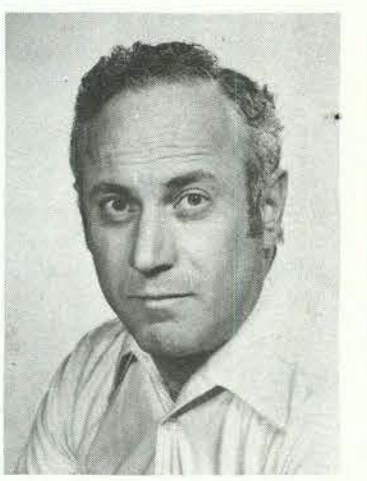
Marion Drago - 1323 25



James Ayers - 3721 20



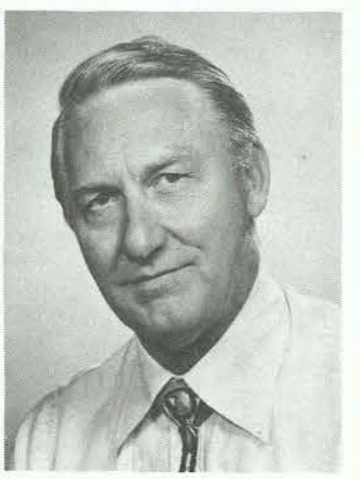
Frank Sayner - 2627 20



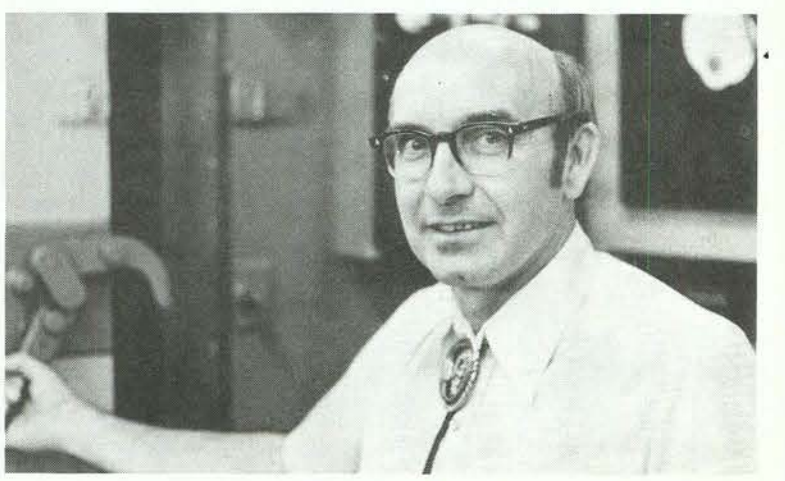
Murray Silverman - 1751 20

Nick Montoya - 3254 20

Edmund Buss - 3715 20

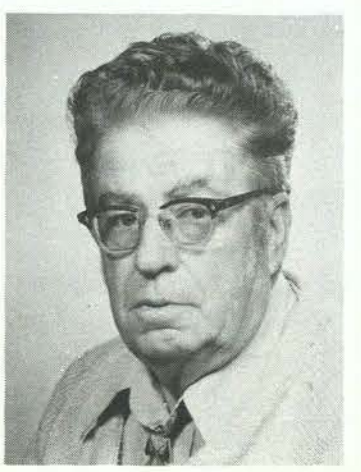


William Caldwell - 2135 20

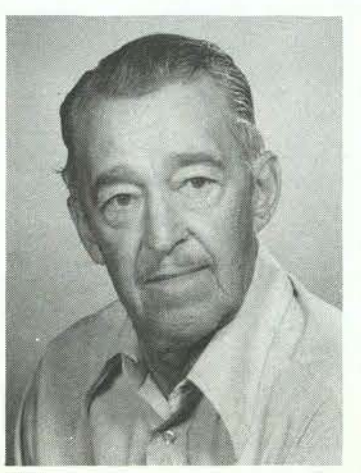


Frankie Potts - 9341 10

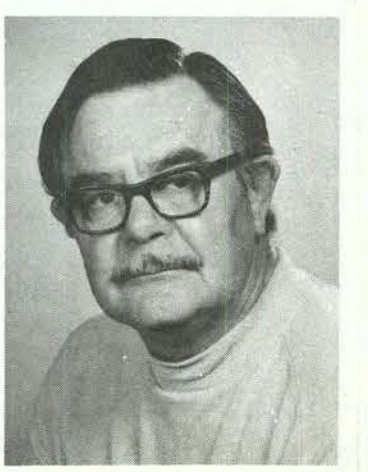
Larry Bertholf - 5162 10



Marion Young - 9522 20

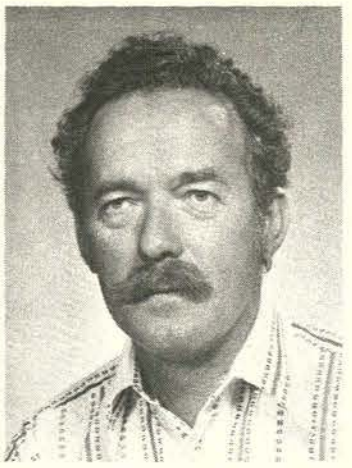


Jesse Williams - 3644 20

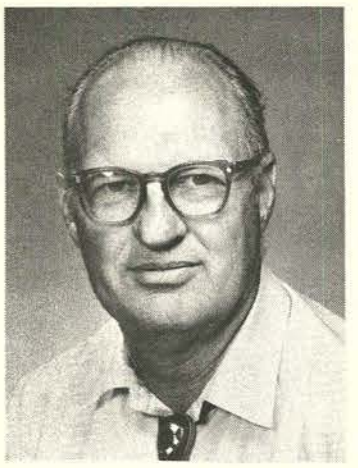


W. Schuessler - 9531 20

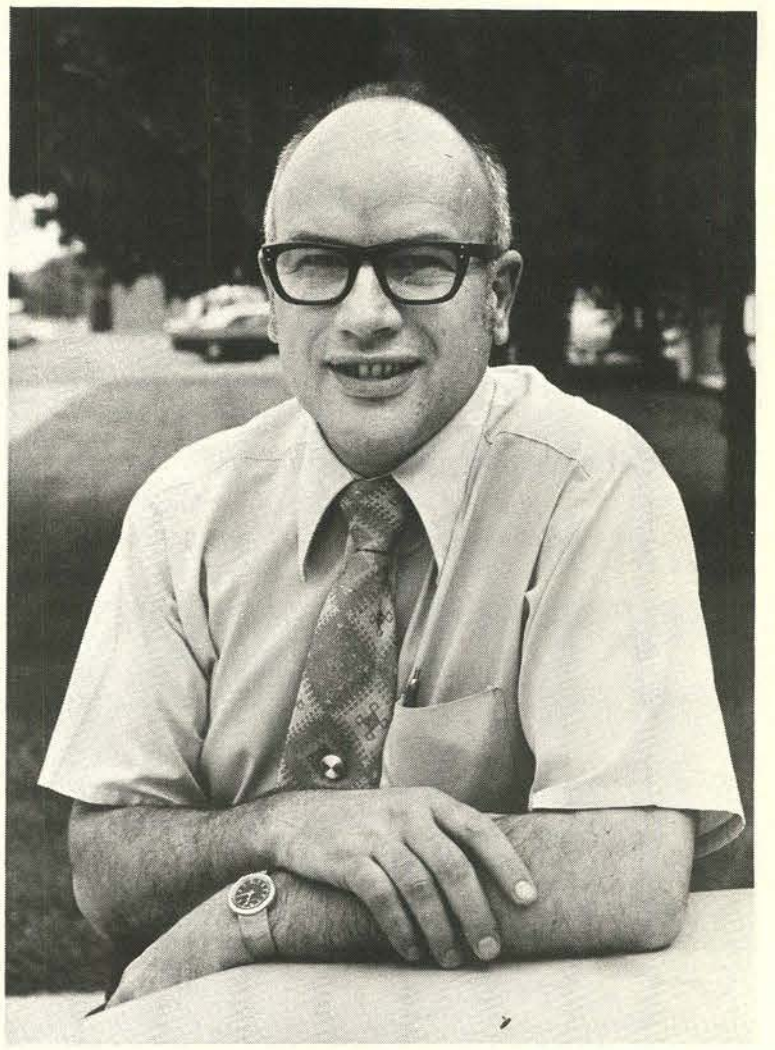
Edgar Boeck—1211 15



Carl Schuster—5733 20

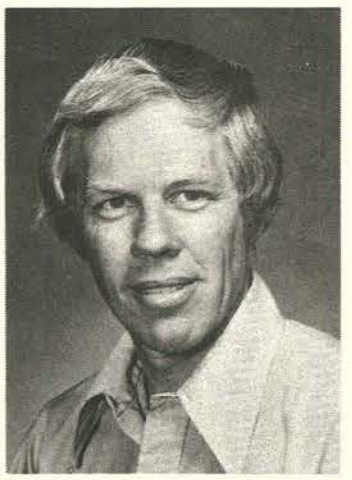


Glenn Miller—5216 15

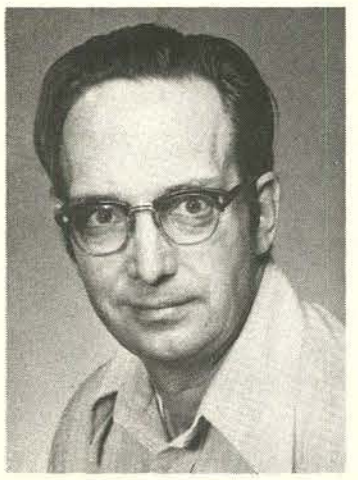


Lynn Rigby—4250 10

Eddie Walker—1221 25



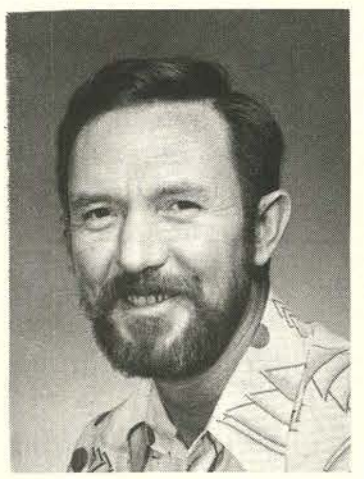
Terry Herther—1352 15



James Plimpton—1112 15

Jack Shoup—2520 30

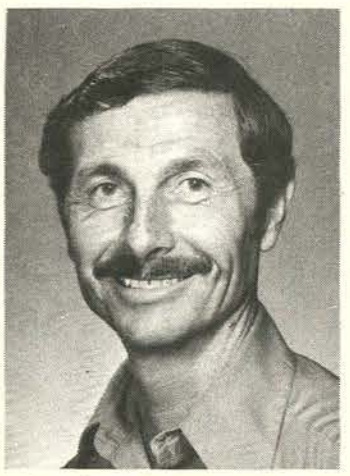
Alden Luhrs—9514 25



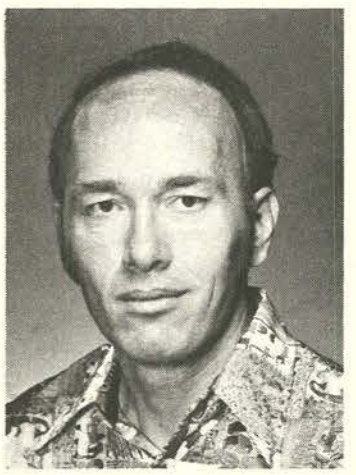
Robert Davis—9335 10

Doris Mortensen—1716 15

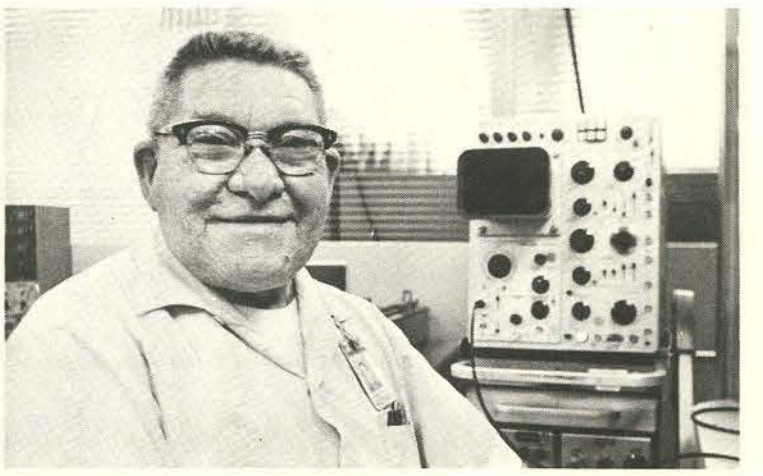
Bill Doyle—3433 20



Orlando Rodriquez—9718 10



James Dyer—2531 15

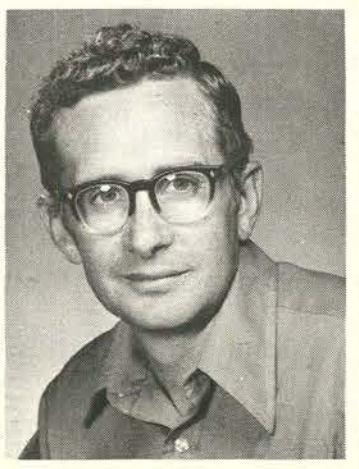


Homer Messenger—3613 25

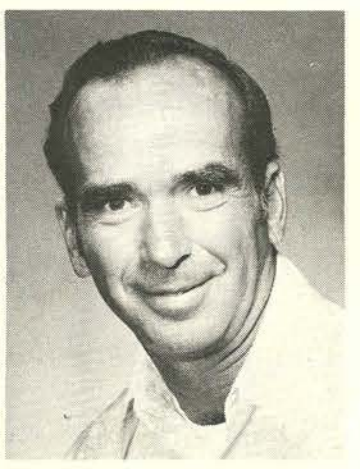
Ken Gentry—9635 20

Edgar Schreiner—2327 20

Wynne Grace—1753 20



Melvin Scott—2642 10



A.V. McFarland—1135 20

Moving Along Together

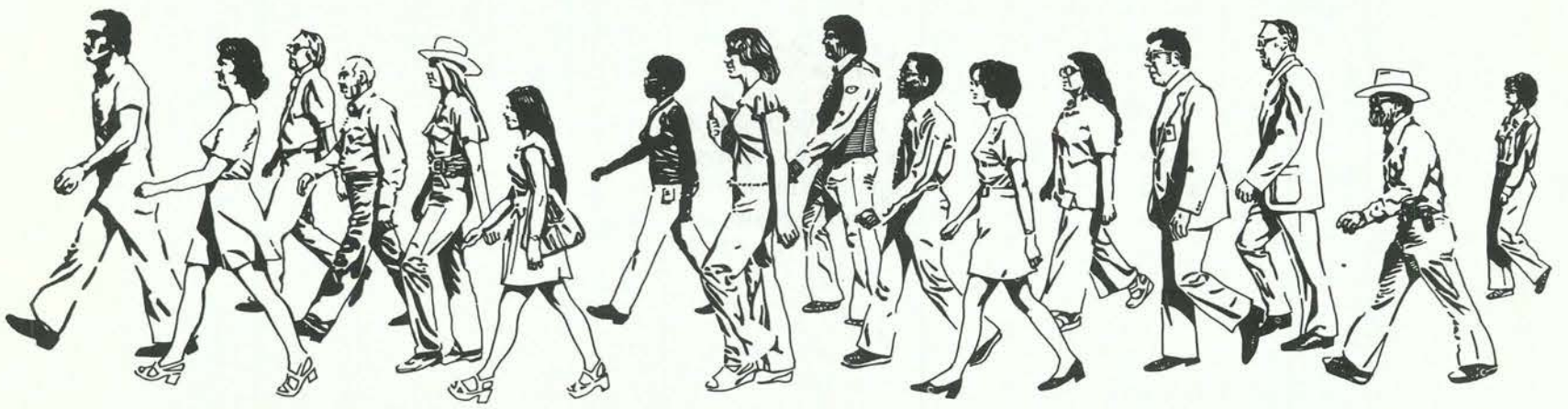
As President of Sandia Laboratories, I reaffirm our commitment to the principles of equal opportunity. We will continue our policy of conducting matters involving people without regard to race, color, religion, sex, national origin, or age. This policy extends to every facet of our activities, including recruitment, hiring, compensation, transfer, training, advancement, and termination. Not only will we comply with all applicable laws, directives, and regulations of federal, state, and local governments and their agencies pertaining to equal employment opportunities, but we will also strive to develop the true spirit of these acts throughout the Laboratories.

I am happy to note again that our affirmative action efforts over the past years have had gratifying results. These efforts plus our conduct of business have advanced the cause of equal opportunity both in the Laboratories and throughout the communities with which we interact. Internally our progress is reflected not merely in numbers of minorities and women on roll but in their greater representation in the professional and supervisory jobs. The ultimate objective toward which we continue to strive is the optimum use of our personnel resources.

Our affirmative action program has been developed with the view of assuring good faith implementation of our equal opportunity policy by all Laboratories people. Information is regularly disseminated through policy statements, employee news media and special meetings. Every supervisor is expected to be familiar with our affirmative action program and take an active and positive role in maintaining and promoting our equal opportunity commitment. Accordingly, responsiveness to this commitment will be a consideration in supervisory assessment and review programs.

Mr. J. R. Garcia, my Special Assistant for Equal Opportunity, will continue to monitor all equal opportunity activities and report to me on the effectiveness of our affirmative action program, including recommendations for necessary action to insure attainment of our objectives.

Morgan Sparks



BASED ON THE THEME "Moving Along Together," the poster above was designed by Jim Walston, 3155. The theme and art work will characterize such 1977 AA/EO publications as recruiting material, posters, and plans. The Laboratories' 1977 Affirmative Action Plan will be distributed in the next few days to all supervisors. Individual vice-presidents will distribute their own organizational plans and orient members of their groups.

JUNK • GOODIES • TRASH • ANTIQUES • KLUNKERS • CREAM PUFFS • HOUSES • HOVELS • LOST • FOUND • WANTED • & THINGS

CLASSIFIED ADVERTISING
Deadline: Friday noon prior to week of publication unless changed by holiday.

RULES

1. **Limit 20 words.**
2. **One ad per issue per category.**
3. **Must be submitted in writing.**
4. **Use home telephone numbers.**
5. **For Sandia Laboratories and ERDA employees only.**
6. **No commercial ads, please.**
7. **Include name and organization.**
8. **Housing listed here for rent or sale is available for occupancy without regard to race, creed, color, or national origin.**

MISCELLANEOUS

BIKE EXERCISER, Montgomery-Ward, $25. Baca, 265-2881, after 5.

TOP SOIL, free, you haul. Gonzales 873-0216.

DISHWASHER, Frigidaire Custom Deluxe, $45; 6 bulb crystal chandelier, $45. Snelling, 294-5751.

BEDROOM SET, 7 piece, $600; kitchen dining set with six chairs, $225, both items 5 month old. Navratil, 293-5527.

ADAPTOR-AMPLIFIER, Marantz 2440 four channel, $150; BSR equalizer, $50; Panasonic 8-track playback deck, $40. Rogulich, 292-3815.

CAB OVER CAMPER, 8 ft., sleeps 4, $775. Jones, 298-3165.

WIDE RIMS and tires, five 15 x 8 six lug chrome wheels, four 10-15LT tires, $120. Brooks, 881-2287.

REED ORGAN, parlor style, about 1890. Harrell, 281-3251.

TENT, Shipsail 9 x 12; Clary adding machine with printer; chemical Porta Pottie model 1000; toys. Hart, 255-2133.

STEREO CARTRIDGE, Shure V-15 type III, test record, $50. Garrison, 881-1851.

BABY ITEMS; car seat; walker; back pack; bath tub; infant seat. Falacy, 881-1802.

ADDING MACHINE, electric, tape, Smith-Corona, $32; Honeywell model 65C electronic flash, $18. McIntire, 294-5884.

BEDROOM SET, bookcase headboard; frame; mattress; spring; 6 drawer dresser, 4 drawer chest. Easton, 256-7717.

CAMPER SHELL, *custom made*, paneled, insulated, lights, 4 months old, cost $525, sell $395. Kohut, 296-8537.

ORGAN TUNER, Schober model AT-1, $45. Henry, 266-6467.

BUMPER POOL TABLE, cues, balls, $35. Troy, 268-6865.

TIRE CHAINS for 700 x 13 tires, $12. Moyer, 881-3879.

SUPERWINCH ATV 1500V, vertical cable guide, 4600 pound pull 20% incline, for compact pickup, complete, $100. Womelsduff, 296-9485.

COCKTAIL RING, ladies size 6½, diamond and ruby, have appraisal, best offer. Bogdan, 265-6195.

TIRES, A78-13 Goodyear Polyglass, suitable for spare, 3 ea. at $5; 165-13 Bridgestone, 2 ea. at $15. Kromer, 255-5013.

TWIN SIZE BED, box springs, head board, frame and orthopedic mattress, $39. Winblad, 898-9762

100 GALLON TANK, for fuel oil, gasoline, pesticides, etc., $40. Robertson, 298-1048.

GAS DRYER. Sears Kenmore, white, $50. Burger, 299-8626.

HEATER AND EXHAUST flue for home, office, or shop, natural gas, 20,000 BTU/min., $40 or best offer. Rush, 265-5374.

BICYCLE CARRIER for auto, new, half price, $10; Revere 35 mm slide projector, $20; radiant screen, $15. Atkins, 298-5762.

VACUUM CLEANER, cannister *type*, $10; *green dial telephone*, $16, garbage bags, $3.25/box; pocket stop watch, $5. Koletar, 255-4751.

QUEEN SIZE BED, wood headboard; *man's yellow gold* Bulova Acutron wristwatch, original cost $130. Bowers, 298-1992.

FEMALE PUPPY, 6 weeks old, 1 year old medium sized female dog, all shots, housebroken, to give away. Lundquist, 266-0893.

UPHOLSTERED CHAIRS, 2 ea. Callahan, 821-0608.

WASHER AND DRYER, gas, Whirlpool, 1 year old, harvest gold, $350. Aragon, 293-3238.

ELECTRIC FIREPLACE, 220V, 20,000 BTU, rotating light gives fire burning effect, $200. Pennington, 256-9506.

COLOR TV, 25" Heath-Kit, GR-25, walnut cabinet, $125. Kepler, 298-5652.

MATCHING EASY CHAIRS, beige nylon fabric, modern design, sturdy construction, $50 each or $90 the pair. Cova, 266-3345.

TRANSPORTATION

'73 PENTON 125cc dirt bike, $200 or best offer, Baca, 266-1629.

'72 DODGE Dart, six cyl., 3 spd., new tires, radio, PS, $1825. Krumm, 299-2279 after 5.

'76 YAMAHA 500, 2000 miles, best offer. Syler, 299-2941.

'72 COMET, AT, AC, PS, V8, 59,000 miles, $300 below book, $1650. Thunborg, 898-0863.

'71 TORINO 500, 302 V8, PS, AC, radio, heat, new tires and shocks Worden, 298-1915.

BOYS BICYCLE, Huffy 20" Dragster, thornproof balloon tires, $20. Benson, 268-3586.

'72 PINTO, 4 spd., $995. Chavez, 242-9140.

'75 OLDS OMEGA, pirate body style, 6 cyl., 3 spd. on floor, no air, red/white, vinyl top, white bucket seats, less than 18,000 miles, asking $2900. Duvall, 296-7243.

'64 CADILLAC, all extras. Peterson 299-0164.

'72 DKW-SACHS Enduro 125cc, 6 spd., street legal but high performance, $275. Fisk, 294-7252.

'69 JAGUAR Coupe, new motor, tires, lacquer paint. Brian, 869-2716.

'74 VEGA Kammback, AC, new tires, 4 spd., red, black interior. Hurt, 299-8857.

'75 YAMAHA RD350B, 1,400 miles, original owner, passenger bar, luggage rack, safety bars, just tuned, $795. Schwartz, 255-9409.

'75 SUZUKI TS-185, $550. Robertson, 298-1048.

'67 DODGE pickup LWB, with shell, 4 spd., recent overhaul and brakes, new tires and battery. Owens, 881-0815.

'72 DUSTER, 3 spd., green, 2 dr., 318 engine, R & H, 8 track tape, $600 below book, $1000. Trump, 299-5162.

'64 CHRYSLER Wagon, regular gas, AT, power, air, Michelin tires, $375. Daniel, 268-8335.

'69 IMPALA 4 door, white vinyl top, PS, PB, radio, AC, $600. Iverson, 869-2527.

'70 VW WAGON, type III, Oct. NADA book value—$1375, $1075 firm. Roady, 264-8600.

'71 CHEVY Malibu, one owner, 2 dr. HT, V8, AT. Johnston, 881-1280.

'72 COUGAR XR7, AT, AC, PS, PB, vinyl top, Goodyear radials. Curtis, 266-4755.

'74 ¾ TON CHEVY, with 11 ft. Pilgrim camper, self contained, approx. 11,000 miles. Sisneros, 255-6306.

'73 VEGA GT Hatchback, AC, 4 spd., radial tires, deluxe interior, radio, sport stripes, asking $1700. Cleveland, 298-0218.

'69 RAMBLER 440, 4 dr., blue, V8, AT, PS, AC, radials, reclining seats, new brakes. Keizur, 298-7945.

'73 DATSUN Baja pickup, wide mag wheels, FM stereo, tape deck, roll bar, $2200. Bachand, 299-5167.

FOR RENT

HOUSE available 11/1, Eubank/Comanche vicinity, 3 bdr., 1¾ baths, den, dining room, fireplace, utility room, garage, $325/mo., 1 year lease. Walters, 296-5803.

REAL ESTATE

3 BDR. HOUSE, 1¾ baths, fireplace, den, pitched roof, double garage, landscaped, present payment $281/mo., N.E. Henden 821-9005 or 265-0421.

3 BDR. HOUSE, 1500 sq. ft., 2½ acres, Monticello addition, good well, 2 septic tanks, 2 fire places, all appliances, $51,500. Knapp, 281-3192.

WANTED

ROUTER. Coleman, 299-2377.

TIRE CHAINS to fit L78-15. Brooks, 881-2287.

GARAGE DOOR. double or two singles, with mounting hardware. Latta, 256-1259.

OWNER'S MANUAL for '71 Datsun model 1200. *Jaramillo*, 865-7081.

BICYCLE EXERCISE MACHINE. Watterberg, 294-6759.

OKTOBERFEST•C-CLUB•BUSES•HOLY LAND• WALKDOWN•MIME•SEAFOOD•NEFF

FRIDAY	SATURDAY
15 — HAPPY HOUR ROAST BEEF BUFFET Adults $3.25 Under 12 $1.92 *Linda Beattie* THE PRISONERS	16 — TEEN DANCE 7:30 - 10:30 OASIS Members 50 cents Guests $1
22 — HAPPY HOUR BBQ RIBS BUFFET Adults $3.50 Under 12 $1.92 *Al McCahon* SOL CHAVEZ	23 — OKTOBERFEST Cocktails 6:30 Dinner 7 *Folk Dancers* POLKA SCHLINGELS Mbrs $5.50 Guests $6.50 (Dryland Ski School At 1)

THOSE — who have the tickets in their hot old hands by tomorrow will have a hot old time next Saturday night at Oktoberfest. In addition to enough German food to busch a Bavarian, we'll have Der Polka Schlingels doing the 19th Century German Hit Parade and the International Folk Dancers doing . . . international folk dances (what else?).

WHO — among us is not ready for Happy Hour? Info on tonight's is below somewhere. But *next* Friday we'll feast on barbequed spare ribs, corn-encrusted cobs, other good things. Then we'll enjoy the soft strumming of Al McCahon — which isn't easy since he plays the piano (a two-fisted talent) and sings. Sol Chavez takes charge at 8:30. If anyone can lure you onto a dance floor, it's Sol. His group can play any kind of music yet invented and a couple that haven't. (Or is there a couple that haven't?) Don't forget the freebie football ticket drawing for the NM State (homecoming) game on the 30th.

THINK — duplicate bridge is too tough to be fun? Think again. Then find a partner and practice a bit. And get ready for two special events sponsored by the Coronado Bridge Club coming up in November and December. And be watching for notice of bridge classes for both novices and experts — learn both the basics and the mechanics of duplicate bridge. Virge Bailey has more info. Or come out any Tuesday evening at 7:30; the group meets around tables suspended from the restroom ceilings. They call it Bridge Over Troubled Waters.

THE — Lobo buses are properly popular hassle eliminators. A less well known benefit is the Fifth Quarter after the game at the Club, each one featuring an appropriate drink special in a glass you get to keep. The next one is one the 30th, and, because it's Homecoming and they're reenacting the Battle of Glorieta Pass or something at halftime, the game starts at 7 and the bus departs the Club at 6:15. The special drink, logically enough, is an Aggie Ambush. Get your tickets early so enough buses can be ordered for everyone to have a warm, highly social bus ride.

DEAD — walking. Wolfmen howling. Ghouls (including the famous "Ghoul of my Dreams") lurking. Butchers hacking (terrible cigarette cough). And mummies unraveling. All these and more at the Famous C-Club Kids' House of Horrors, Horror Movies, Even More Horrible Games, and Genuine Super-Horrible (but free) Candy. Your sub-teen will have a Genuine, Certified Horrible Time — and beg for more (or less). 50 cents per child head. Parents free — and very welcome, especially if the kids are small. 6 to 9 on the 31st.

NEVER — considered spending Christmas anywhere save midst the luminarias or in the bosom of the family in Poughkeepsie? Reconsider. The most noelian place of all has got to be the site of the first one — the Holy Land. And with the all-inclusive package Ed Neidel has put together, you can get there, see the sights, get inspired, and return for little more than the Poughkeepsie trip will cost. The Office has brochures. *Pre-trip meeting is at 7 on Monday, the 18th.* Deadline for signups: Nov. 8.

COME — out to the Club for the World Series evening games next week. Why? Because it's more fun to watch in a group. AND because you get a free whatever-you're-drinking if anyone hits a home run while you're drinking it. (It could be an interesting evening — in the 1953 Series, the Brooklyn Dodgers and the New York Yankees racked up 6 homers.)

BACK — to the slopes soon, the skiers hope. But first, make the Ski Club meeting on the 19th. Bring your usable but not-used-anymore equipment and swap it for neat and needed from 6 to 7. Socialize then till 7:30 and time for Purgatory right here on earth. Fritz Tatzer, Robert Rountree, and Paul Souder will describe the glories of the place, show slides (for skiers, what else?) and give you a questionnaire. Fill it out and you're eligible for the Purgatory Season Pass drawing. Added attractive attractions — ski fashions from Olympic Sports. And the meeting is the *last chance* for the $1 discount on membership.

TO — feel less Klutzlike your first time on skis, come to the Club at 1 on the 23rd. Resident Expert Tom Long will introduce you properly to poles, boots, skis, bindings — it's a lot easier on level ground the first time. You don't have to be a Ski Club member or even a C-Club member, just an ambulatory biped. So invite your non-member friends.

LIFE — in Japan as seen through the lens and the eyes of Nick DeLollis is the feature of Travelogue Night on the 20th at 7:30. Given Nick's professional expertise, he'll have you glued to your seat.

HAVE — you ever seen the Lobos play basketball? In Hawaii?? Your chance draws nigh. Nancy Sanchez has all the info on a Dec. 7-14 package featuring 3 games plus sightseeing, sea-sighting, lots of leisure time, at fabled places like Honolulu and the Waikiki Beach, Hilo, Kona, Oahu. Price? Under $400 and that includes hotels, game tickets, transfers, air fare, etc.

NEVER — a dry spell with *Oasis* on the bandstand for the Teen Dance tomorrow night. Tickets before or at the door, parents.

BEEN — thinking about an Organizational Christmas party this year? Don't wait for your secretary to organize it. Get the info you'll need from your supervisor, or call the Office for a copy. And start planning.

HERE — it comes, singles: the 1976-77 season of Singles Nights premieres on the 29th. It features waived admission to the Club for all Sandia/ERDA singles (& dates), a talented bartender at a Happy Hour bar, and the *piece de resistance* — Amazing Apache Al Artiaga at the piano. All in the El Dorado Room starting at 4:30 for 50 cents. Nicer than Ned's and not nearly so much hassle.

AT — the Commonwealth Theatres you pay $2.50. Unless you have a discount ticket. They're $1.75. Get them at the Club, members.

4:30 — already? Then head for the Club and tonight's Happy Hour. Linda Beattie, the *Country Comfort* singer, is unprotected tonight from 6:30 to 8:30. She's followed by *The Prisoners* (can't blame them). Preface the entertainment with roast beef *au jus*, baked potato with sour cream, and buttered-up zucchini.

MORE INFO — 265-6791

• WORLD SERIES • HOLY LAND • LINDA BEATTIE • GHOULS •